The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 8. FEBRUARY 20, 1932. VOL. 12.

VAGINAL AND RECTAL EXPLORATION*

L. M. MAGEE, M.R.C.V.S., DUNBOYNE.

When at our last Council meeting I observed our worthy President like a disconsolate fisherman with a bad fly casting about looking for a bite, almost out of pity for such a patient and kindly angler I swallowed his uninviting bait, and, to mix my metaphor, stepped boldly into the breach. Like many another poor fish, however, it was only when landed on the bank that I realised the rashness of my capricious appetite, and, like our hero in the breach, commenced to doubt the wisdom of my bravery.

The compiling of a paper is in my case a very tedious business, as I am a slow writer and those stimuli of the grey matter popularly called brain-waves, are, like angels' visits, few and far between. But I was encouraged by the hope that my effort would possess one redeeming feature—originality. It was only when well on with my rough copy that I happened to consult Share-Jones' Surgical Anatomy and learned that at the N.V.M.A. meeting in 1895 Professor Macqueen read a paper on Rectal Exploration. It was a short treatise but contained most valuable information. I have taken full advantage of it and I gladly avail myself of this opportunity gratefully and affectionately to acknowledge my indebtedness to that great surgeon, not only now but for acts of kindness to me when his pupil at Camden Town, and afterwards when I became qualified.

Veterinary surgeons are undoubtedly greatly handicapped in the matter of diagnosis as compared with members of the sister profession, in as much as our patients exhibit objective and no subjective symptoms. Nevertheless, we have one great pull over our medical friends in that by means of a manual rectal exploration we are able, in the case of the large domestic animals, to examine most of the viscera of the abdominal cavity. Just imagine what a godsend it would be to the human surgeon if he could palpate the abdominal viscera of his patient through the wall of the rectum. Probably it would often be of much more diagnostic value to him than even the information obtained by that miracle of modern science, X-ray photography, and for certain it would save many a poor invalid the pain and expense of an exploratory laparotomy.

But do we take full advantage of this opportunity which our patients afford us? I must candidly say I do not think so. Perhaps, however, I overrate its importance. On that point I shall quote two extracts, one a short note on Rectal Exploration from Share-Jones' Surgical Anatomy, in which he says: "In the diagnosis of many internal affections in the horse exploration through the rectum is such a valuable aid that the importance of its frequent practice cannot be too strongly emphasised. It is only by constant and repeated attempts that a sense of the normal 'feel' of the various structures encountered can be acquired." And Professor Macqueen says in his paper "Cases that give no sign to exploration are uncommon and without this precious aid diagnosis, whether positive or negative, is doubtful. With faith in possibilities, rectal exploration may be tried again and again, and information may be gained at every exploration." It is hardly necessary, therefore, to stress the point further. And now, before getting to my serious topic, I feel an apology is due to you for such an unusually long preface. However, you will admit there was temptation to be somewhat prolix, and the best excuse I can think of is that of the humorist who said he could resist anything but temptation.

The first advice I would give to anyone about to explore the vagina or rectum is to provide himself with soap and a nailbrush, a bucket of clean warm water containing a little antiseptic, a good reliable side-line and, needless to say, an operating coat and overalls, the latter especially when dealing with cattle. The side-line I consider an absolute necessity, as the holding up of the near fore foot by an attendant is by no means a guarantee of safety. I remember being nearly killed on one occasion when attending a case of colic by neglecting to take this precaution, the horse suddenly pulling his foot from the groom and kicking me in the abdomen. Of course, very occasionally you may meet a horse that is dangerous to handle, no matter what your means of restraint. My advice in such a case is "You have only one life to lose; don't touch him with a forty-foot pole." The slogan of "Safety First" was never more applicable than here. I now always bring my own side-line (which I have here for your inspection). It saves time by having it always at hand; it looks well, and is, if I may use the horrid word, a good "stunt." It is also absolutely dependable, is easily applied and can be released in a second without the slightest danger, or having to go near the mare's feet.

* Paper presented to the Veterinary Medical Association of Ireland, at the Veterinary College, Dublin, on Thursday, December 10th, 1931.

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As you see, it is made roughly on the lines of greyhound coursing slips.

Personally I prefer washing the hand and arm with soap and water and then lubricating lightly with soap to applying oil or vaseline. With the hand cone-shaped considerable pressure is sometimes necessary when entering the rectum to overcome the resistance of the sphincter ani. When once in the bowel, all fæcal matter within reach should first be removed. This often requires the frequent withdrawal of the hand, and it is well to wash the hand and arm each time and lubricate with soap before forging gently up the bowel on your voyage of discovery.

I have here, perhaps, stressed some simple points which are self-evident. But I can recall two instances in which these precautions were not observed and with fatal results, the rectum in each case being ruptured. I have to confess that on one of these occasions I was the culprit myself, but I can plead it was in my early days and the patient was a yearling, where greater caution is necessary than with the adult animal.

The Vagina

The vagina is much more easily examined than the rectum, as its passage is short, roomy and accessible and can readily be illuminated by the use of the speculum and electric torch.

The first part of the passage is somewhat constricted—almost as if there were a sphincter—and sometimes a good deal of pressure is required before one's hand reaches the main cavity.

In the normal vagina of a non-pregnant mare the walls are first usually found to be loose, flaccid and moist. They then often become distended and tight, a condition which is called "ballooning," and in this state the geography of the district is best learned and operations most easily performed.

Wounds of the walls of the vagina are mostly caused during parturition and on very rare occasions by the stallion during coition. I remember a stallion penetrating with his penis the wall of the vagina just above the cervix, and a bull causing the very same injury to a young heifer into the company of which he had broken from an adjoining field. The stallion's penis was noticed to be smeared with blood on its withdrawal from the mare and she commenced to show symptoms of discomfort almost immediately. Such cases are usually hopeless and all one can do is swab the wounds with tincture of iodine and hope for the best. Mare and heifer died from peritonitis, which I verified on *post-mortem*. Last spring I had an experience of an accident which, of its kind, is probably one of the rarest in veterinary practice. It was in a thoroughbred mare that during her labour pains had forced the head of the foal through the roof of the vagina into the rectum and partly out through the anus, while the foal's feet appeared through the vulva. The stud groom, realising immediately what had happened, shoved the foal's head back and down into the vagina, and the mare foaled without further trouble. I did not attempt stitching but simply painted the wound above and below with tincture of iodine and inoculated against tetanus. In three weeks the wound had closed completely and the mare was served successfully some weeks later. Should a wound of this nature not heal completely it would constitute what is known as a recto-vaginal fistula, which is simply a communication between the rectum and the vagina. Treatment is said to be seldom successful.

Cysts are sometimes found in the vagina, but I have never observed any. I have met one case of hæmatoma beneath the mucous membrane of the vagina. Tumours are also rare and I can only recall meeting with one. As it was probably unique I should like to describe it. The subject was a cow that for a week or so was occasionally noticed to be straining and passing small quantities of urine and as "every picture tells a story" the poor kidneys were, of course, suspected. There was a huge tumour growing from the end of the cervix and extending almost to the lips of the vulva. It was as smooth and glistening as a child's balloon, firm in consistence, whitish-pink in colour and filled the cavity almost completely, so that it was difficult to pass one's hand up to the cervix. When the lips of the vulva were parted its smooth rounded end was immediately visible. The cow was six months calved, so the tumour must have grown during that time. The owner was not keen on an operation and as the cow was in fair condition I advised him to dry her off and sell her as soon as possible.

Fractures of the pelvis can be detected either by an examination of the vagina or rectum. With the hand in either passage it is of great assistance to get an assistant to rock the animal by placing his two hands on the patient's hip, when crepitation is likely to be felt if a fracture is present.

Cows failing to hold to the bull probably afford the veterinarian most opportunities for vaginal examination. Sterility is due to many pathological conditions, but the most frequent offenders are contagious granular vaginitis, endometritis and contagious abortion. It is necessary that one should carefully differentiate between the three.

In the diagnosis of vaginitis it is not always necessary to use the speculum, as the lips of the vulva can be pulled apart sufficiently to recognise the congestion on the floor of the cavity, especially around the clitoris, in which nodules can be felt in or on the mucous mem-

brane. The frequent micturition of the animal is a symptom which should always excite suspicion.

Another form of vaginitis that may be mistaken for this is coital exanthema, or bull burn, and is said by some to be the same disease. A very marked difference, however, is the almost constant and violent switching of the tail, the nodules are missing and the walls and floor of the vagina have a scalded appearance. I saw my first case of this affection quite recently. The symptoms appeared a few days after the cow was served by the bull, which was strong evidence that that gentleman was at fault, and the constant switching of the tail was also very marked. In both of these types of vaginitis probably the best treatment is the insertion of antiseptic pessaries, such as those made by the Monsol Company, some samples of which I have brought with me.

The examination for endometritis is best done with the speculum and torch, when the near end of the cervix and the mucous membrane of the os are often seen to be deeply injected, although not necessarily so. This is a pathological condition which certainly no country practitioner can afford to ignore, and, as far as veterinary surgeons in this country are concerned, it is not the fault of Professors Nielson and Craig if they do so. It would, however, be an impertinence on my part, and going far outside my province, to say any more on such an important subject while there is a splendid little book available entitled "Sterility of Cows," by Albrechtsen, who has probably forgotten more about the disease than I know or am ever likely to know.

Endometritis in the mare is also a very common cause of sterility and of serious financial loss to breeders. As it is a subject which I hope some day to bring before this Association, should I be given an opportunity—unless someone else does the good Samaritan, for which I would be sincerely thankful—I shall not refer to it further here.

Even with the speculum the examination of the vagina is not specific as regards diagnosing contagious abortion. The only reliable method is to apply the agglutination test to a sample of the animal's blood. As regards treatment, I should like to state that I have had splendid results from the vaccine which is issued to us by the Department. My almost invariable experience has been that, when injected into a non-pregnant reactor which is sent to the bull after missing two services, a full-time calf has been bred. I remember a great friend of mine—a well-known and eminent veterinary surgeon—once said to me that he had never used antiabortin, on the grounds that he was unable to see how it could be of any use to inject a vaccine containing a living culture into an animal affected by the same organism. I said to him, "That is a matter few practitioners know much about: it is not our job. The 'proof of the pudding is in the eating; if the vaccine works the oracle, push it under the skin."

I would like to make one more remark on this disease. At its present rate of progress in this country, if it is not made a scheduled disease and compulsory vaccination or isolation introduced, or some method of control and eradication adopted soon, it will be a poor outlook for the dairy farmers of Ireland. Its ravages must be costing this country many millions a year.

The vagina is sometimes, though very seldom, found to be malformed. Apart from many cases of imperforate hymen, causing white heifer disease, I have only once found the passage abnormal in shape. The patient was a heifer that had been trying to calve for two days. An examination of the vagina revealed it to be cone-shaped, with the point of the cone at the cervix. The passage was so narrow that it was difficult to examine the os uteri. One finger could be passed through into the uterus, from which a stinking watery pus was discharging, indicating that the fœtus was putrid. A Cæsarean section saved the life of the heifer, and as it was during the war and the animal fattened well, it proved a good gamble for the owner.

There is a disease the symptoms of which, in the case of a heifer, resemble white heifer disease very much, and which, if one has not met it before, provides an easy pit-fall. It has claimed me, for one, as a victim. Although the constant straining is present an examination of the vagina reveals nothing abnormal, and if the rectum is not explored the problem will remain unsolved. The cause is a proctitis or inflammation of the rectum, which is diagnosed by passing one's hand up the bowel. I have met with four cases of this disease, which a little time and patience generally cures, but, of course, a placebo should be prescribed.

The operations necessitating invasion of the vagina, besides those I have already mentioned, are the passing of the catheter, puncturing the bladder, ovariotomy, insemination, and the rupturing of cysts in the ovaries. The last operation also requires the left hand to be passed up the rectum to grasp the cystic ovary through the wall of the bowel and bring it back over the roof of the vagina. The right hand, with an abscess knife guarded by a piece of lint, is next passed into the vagina and the lint discarded. The cystic ovary can be distinctly felt through the vaginal roof and, one or more cysts having been located, the knife is passed through and the cysts ruptured. It sounds somewhat dangerous, but it is really difficult to do any injury. I have performed this on the mare, only, in both

the recumbent and standing positions, but I certainly do not recommend the latter. This is probably the only occasion necessitating the invasion of the rectum and vagina by both one's hands at the same time.

Rupturing ovarian cysts by the hand through the bowel is also advised. I have tried it many times and have come to the conclusion that it is one of those operations that are more easily described than performed.

There is a controversial point in connection with the operation of insemination on which I think I can give some positive evidence. Williams, of New York, says he doubts if during copulation the semen ever enters the uterus directly. I can prove beyond doubt that the contrary is the case. On two occasions, immediately after service, when I passed my hand into the vagina to ascertain if the horse had "parted" I discovered that apparently he had not left a drop of semen. But before I withdrew my hand the mare forced and the floor of the vagina became flooded with semen ejected from the uterus. In my opinion this constitutes one of the greatest pit-falls associated with insemination. I have several times since had reason to appreciate the knowledge that semen may directly enter the uterus, and I have been able to pass the inseminator through the os and withdraw the semen and so satisfy myself that the mare had been properly served.

If I may be allowed to divert for a minute, *a propos* this subject I would like to refer to what I consider is an extraordinary opinion coming from one whom I consider a great expert in other respects.

I read some time ago that this veterinary surgeon, at a meeting of a breeders' association in England, condemned insemination on the grounds that malformed foals were likely to be bred as the result of spermatozoa getting injured during the operation. Now out of the millions of microscopic spermatozoa present in the semen of a service cannot one quite easily imagine the lucky spermatazoon, that eventually causes impregnation, straining his off hock while "coming a purler" out of the inseminator into the uterus? One has then only to visualise the possible horrors of the influence of heredity to put the finish touch to a frightful picture!

After twenty-five years' experience of insemination and having seen many of the progeny to which I can claim a kind of step-foster father relationship, I have yet to see a foal which I regretted having had a hand in bringing into the world. However, I shall not discuss insemination further, as I would only be poaching the domain of some member here to-night who will, I trust, provide us with a paper on this interesting topic in the not distant future, and incidentally do me a good turn by placing our good Secretary under an obligation to me so that he will remember me in his prayers for the rest of his life.

There are two diametrically opposite abnormal conditions which sometimes affect the cervix. One is the so-called scirrhous os, in which the cervix becomes hard and fibrous and will not dilate when the cow wishes to calve. In the other the cervix may have been so injured at the last parturition as to cause complete paralysis, and the os is so open and flaccid that the closed fist can easily be pushed into the uterus. This, of course, prevents conception ever taking place again.

There is one more pit-fall associated with the vagina which also claimed me as a victim in my early days and about which I would like to warn the young practitioner. One may be called to a cow that is perhaps two or three weeks calved. The only symptoms to be observed are that she is off her feed, there is a loss of milk and a rather high temperature. There is no forcing and no discharge from the vulva. Yet an examination *per vaginam* will probably disclose a slight stinking discharge from the os uteri signifying a bad case of pyometra, the result, as a rule, of a small piece of retained placenta. Although such cases are extremely difficult to treat and often end fatally, it is a great advantage to be able to explain the exact nature of the disease to the owner and to prepare him for the worst.

Up to the present nearly all the conditions of the vagina I have discussed have been either abnormal or pathological; the last to which I shall refer is a physiological one; it is the condition of the vagina during pregnancy which affords a method of determining at an early stage of gestation whether a mare is or is not in foal.

Williams, in his "Veterinary Obstetrics," gives at great length the various signs of pregnancy in the mare and states that the diagnosis of pregnancy during its earlier stages is exceedingly difficult. He, however, makes no mention of these physiological phenomena which, as signs of pregnancy, are the most manifest, and, in the first three or four months, certainly the most reliable.

In the non-pregnant mare the vagina is, as a rule, easily invaded by one's hand; the walls are flaccid and moist and there is no difficulty in palpating the cervix, which is soft, and one and sometimes two fingers can be passed into the os.

In the pregnant mare much more difficulty is found in passing the hand between the lips of the vulva and up the passage. As soon as the opening of the urethra is passed the vagina is found to be closed, owing to the walls being united. When this union is gently broken down the mucous membrane is either dry and slightly roughened or in that condition which anyone

who has ever mended a puncture, will recognise as " tacky."

The cervix is very firm, usually somewhat pointed and the os uteri hermetically sealed by an opaque, sticky, colourless jelly. I have, however, several times found this jelly pink-coloured, but I did not note at what stage of gestation and do not know if it has any significance.

These physiological conditions of the vagina and cervix are certainly found at three months' gestation and possibly at two, but I have never had an opportunity of examining a mare at the latter stage.

With practice and experience one can often detect pregnancy with certainty without even inserting the hand completely into the vagina.

Recently I examined ten mares for one owner, only one of which was not in foal, and I am confident the ten examinations did not take more than an hour. The only mare I examined *per rectum* was the barren one, and that was just to satisfy the owner.

The value of being able to detect early pregnancy lies in the fact that it is a great advantage to owners to know for certain during the months of September and October if their mares are in foal. The empty mares do not require as much feeding, they can be left out day and night, and need not be taken in when the hunt is in the district. If the mare is old the owner may decide at once to send her to the knacker, or, if she is not, he may enter her for the next sales, and even if he does not advertise in the catalogue the fact that she is not in foal I have a shrewd suspicion that qualms of conscience will seldom interfere with his night's sleep. One will occasionally meet with what I may call a line-ball case, in which the walls of the vagina are only slightly adherent and the condition of the os is also doubtful. It is then, of course, necessary to resort to an examination *per rectum*. If the mare is in foal the uterus will be found distended with fluid and the little fœtus may sometimes be felt with the open hand where it is floating at the bottom of the foal-bed. After more than twenty-five years' experience of stud practice I can say with perfect confidence that this operation is attended with danger to neither fœtus nor mare.

This test for pregnancy does not apply to cows. I have found that their vaginæ at all stages of gestation are open and moist and are as a rule easily invaded by one's hand as in the non-pregnant animal, and I could never detect any difference in the cervix. The most reliable signs, therefore, in cows are the absence of œstrum, the size of the abdomen, and the actual palpation of the calf *per rectum* or by the closed fist through the right flank. One is seldom, however, requested to examine a cow as being in calf, because she invariably every three weeks advertises the fact that she is not by bellowing to all whom it may concern that she wants the bull. The mare, on the other hand, being much more modest and circumspect, shows a more delicate sense of morality, with the result that her owner is often in doubt about her condition, sometimes even for seven or eight months.

The Rectum

Rectal exploration is probably of greater interest to the average practitioner than the examination of the vagina, as it is concerned more with the ordinary diseases which we meet in our every day practice. The rectum naturally does not lend itself to the use of the speculum and torch, but I can imagine their application being of service under certain circumstances.

Wounds of the rectum, in my experience, have been mostly the result of injuries caused by the stallion's penis during service, rupture of the bowel by the foal at birth, ulceration of the bowel eventually causing perforation, and injuries by the hand of the veterinary surgeon during exploration or by the groom when " back-raking." To three of these I have already referred.

On three occasions owing to want of proper supervision by the stud-groom I have known the stallion to insert his penis up the rectum of the mare and injure the bowel. In one instance the rectum was ruptured clean across. Death from peritonitis resulted in each case.

I would like to record one other case on this topic. It was in a three-year-old colt just out of training which I was asked to castrate. The operation passed off satisfactorily, but in four days the groom reported that the animal was stiff and not feeding well. I opened the castration wounds, but they were apparently healthy and I was at a loss to account for his condition. During the next few days he was frequently pawing and became very tucked up. On my next visit I found that his temperature was 104° F. and the groom informed me that he had noticed a little blood on his dung. I immediately examined his rectum and found a small wound, apparently about the size of a sixpenny piece, on the floor of the rectum about eighteen inches from the anus, and the mucous membrane around felt roughened. I at once suspected perforation of the bowel and peritonitis, and, as the animal was insured, I reported at once to the insurance company. The gelding died next day and a *post-mortem* disclosed that the wound and perforation were the result of an ulcer which must have been of several weeks' standing. The perforation at the time of castration was simply a coincidence and the cause of death would certainly have been attributed to the castration had I not made a rectal examination.

The rectum may be found empty and

ballooned with the anus open and flaccid in debilitating diseases such as influenza, or so constricted and tight that it is difficult to pass the hand up the bowel. The latter condition is usually associated with very painful diseases such as twist, intussusception and peritonitis, which are almost invariably fatal. Torsion of the uterus is a condition which, when first met with, may be a little difficult to detect. The vagina itself may be twisted to the right or left so that it is impossible to get to the cervix. Treatment consists in tying the animal up and rolling down a decline until one can detect from the vagina that things have been righted.

The rectum may also be packed so tightly with dung as to cause paralysis of the bowel wall and the animal is unable to evacuate. Other symptoms of this condition are constant straining and erection of the tail. The trouble is easily relieved. A very serious affection, somewhat analogous to this, is sometimes found in the young foal when one or two days old. It is caused by the retention of the meconium, which usually takes the form of pellets, too large to pass through the inlet of the pelvis, and which both in colour and consistence resemble cobbler's wax. I have also seen it in the form of bars about six or eight inches long and almost as thick as one's wrist. By inserting the finger up the rectum these accumulations can be felt just where the bowel enters the pelvis. The little patient is constantly straining and in pain and will not suck the mother. Purgatives have no effect and if not relieved the foal will soon succumb to exhaustion and alimentary toxæmia.

About fifteen years ago I hit on a specific method for the quick relief of this condition. The instrument employed is Hobday's bitch forceps. The foal is first given, by means of an enema syringe, an injection of an emulsion of soap, warm water and linseed oil. The closed forceps is next passed gently up the bowel till it meets the fæcal stoppage at the inlet of the pelvis and gently opened and pushed forward till it grasps the pellet or accumulation of meconium. The forceps should now be closed tightly and slowly withdrawn, and the operation and injections are repeated till soft meconium appears and the foal is free of pain. I can say definitely that there is absolutely no danger of grasping the bowel in the forceps, as one might fear, and which I dreaded myself when I first used it. I have saved the lives of more than a dozen foals in this way which otherwise would have died, and other veterinary surgeons to whom I explained the method have told me that it has been equally successful with them.

There are spoons and extractors advertised in English and foreign catalogues for the relief of this affection, but they are useless. I would, therefore, suggest to Messrs. Arnold to catalogue this instrument also as a meconium forceps or excrement extractor for foals. They need not alter the instrument one iota.

Another abnormal condition of the bowels which may be detected *per rectum* is the so-called "gut-tie," which is evidently more common on the Continent than in these countries. Personally, I have never met with a case, or met a veterinary surgeon who had. It occurs in bullocks—generally those from two to three years old. The commonest cause is said to be the adhesion of the torn end of the spermatic cord to some portion of the bowel or omentum, or the cord may actually encircle and strangulate it. The animal shows serious symptoms of colic, some of which are said to be characteristic. On examination *per rectum* a swelling, usually about the size of a man's head, which is painful and doughy, is detected in front of the entrance to the pelvis. Treatment consists in trying at the start the effects of jumping the animal down from a high bank, or taxis through the bowel. However, I think, from what I have read, that most hope of a cure lies in a laparotomy through the right flank. The use of the Burdizzo Castrator, which, in my opinion, is likely to replace all other methods of castration of cattle in the near future, would, of course, prevent such an accident ever occurring.

On each side of the pelvis we can examine for thrombosis of the iliac arteries or at their point of origin from the posterior aorta. The presence of a thrombus is determined by the absence of pulsation as compared with the arteries of the opposite side. I have never met with thrombosis of any of the iliacs. I have, however, at different times treated four horses for lameness that resembled mild cases of iliac thrombosis. Each horse always went lame on a hind leg soon after starting exercise, but became sound again with a short rest. There was, however, no severe pain or sweating. The affected leg was simply rested till evidently matters were put right by collateral circulation. Each of these animals recovered within two or three months when put on a course of potassium iodide. I do not pretend to understand the exact nature of these cases or to be able to explain the effect of treatment. Possibly the femoral or some smaller artery contained a thrombus.

Affections of the prostate gland are apparently very rare in the large domestic animals and I have no recollection of having come in contact with one. If present it would be diagnosed by examining the gland, *per rectum*, where it is situated at the neck of the bladder.

Prostate trouble is much commoner in the small domestic animals, but as my paper is already on the long side I only intend to associate my remarks with the vaginal and rectal

conditions of the large domestic animals. While one's hand is still in the pelvis the bladder can be examined for cystitis, distension, calculus and tumour. I have met one case of tumour in the bladder of a mare which could be felt distinctly through the rectum or by passing the finger through the mouth of the organ. I am confident it was malignant, but I did not get an opportunity of confirming my opinion.

Some years ago I was requested to see an aged stallion belonging to an old farmer who was practically a recluse and lived far outside my district. He told me that the horse had been treated for indigestion by another veterinary surgeon about a month before and that he had been given powders which did not do him any good. He said that for many months the patient had been feeding badly and losing condition, and micturated frequently, passing a very small quantity of urine at a time. An exploration of the bowel revealed what seemed to be a very large tumour in the abdominal cavity beyond the rim of the pelvis. I diagnosed a malignant growth, believing that it was its proximity to the bladder that caused the frequent micturitions. As it was late at night I suggested to the owner to let me destroy the horse two days later and make a *post-mortem*, to which he consented. My examination provided an interesting surprise. The large tumour turned out to be the bladder, containing a huge calculus of what seemed to be hard yellow clay. It was about the size of a boy's rugby football, and evidently its weight had pulled the bladder forward out of position. I learned later from a man living in the district that the stallion had not been exercised for years and was never taken out of the stable except to serve a mare. The unhealthy sedentary life and the drinking water, which may have been taken from a muddy well, might furnish a possible solution of the problem.

In exploring the abdominal cavity proper a long arm has a great advantage over a short one like my own. In an average-sized horse a man with a long reach may be able to palpate the border of the spleen and the cœliac axis, both of which are altogether outside my range. One can, however, feel the left kidney, the anterior mesenteric artery, the last rib, the double and the floating colons, the small intestine and recognise such conditions as displacement, twist and invagination and, in hernia, pull back either the omentum or bowel into the abdominal cavity. I once felt the right portion of a cow's liver that was affected with tuberculosis and greatly enlarged. If the left kidney is affected by pyelo-nephritis it will be distinctly enlarged, and one or both ureters are likely to be distended and feel like a piece of rope.

When a tumour is located in the sub-lumbar region it is almost sure to be one of three things —a malignant neoplasm, an enlarged lymphatic gland, or thrombosis of the anterior mesenteric artery. The amount of connective tissue that forms around the anterior mesentery artery and its branches when affected with thrombosis is sometimes enormous and makes a positive diagnosis practically impossible. As one can only touch the mass with the tips of the fingers, it gives the impression of being an enormous tumour suspended in the mesentery.

In considering the examination of the abdominal viscera in connection with colic I cannot too strongly recommend the perusal of Reeks' book, "Common Colics of the Horse." Personally I consider it a classic and indispensable as far as the modern treatment of these diseases is concerned.

As regards the importance of rectal exploration in connection with colic, I hold that it is advisable in nearly all cases, but when a practitioner has any doubt about the nature of the ailment and neglects this duty he is, in my opinion, guilty of culpable negligence.

When locating the ovaries, especially in the mare, it is of great assistance to search for the left ovary with the right hand, and *vice versa*. This also applies to examining the viscera in the right and left sides of the abdominal cavity.

The ovaries may be found to be atrophied, to contain tumours, cysts, an abscess or the corpus luteum or yellow body. I have already referred to cystic ovaries. It would, I think, be difficult to deal successfully with a tumour or abscess in an ovary without removing the whole gland. Personally, I have never met with either condition. The yellow body, which, by its retention in the ovary, often plays such an important rôle in preventing the normal recurrence of œstrum, is expelled from the gland by the pressure of the fingers through the bowel. I have often found great difficulty in determining with certainty the presence of a yellow body. Probably it is because one does not get enough practice.

Another purpose for which the rectum is explored is to discover the presence and position of a rig's testicle—to determine, if possible, whether it is in the abdominal cavity or in the inguinal canal.

A Case Series

I shall now test your patience by recording four cases in which the diagnosis was at fault owing to failure to make rectal examinations.

The first subject was an aged working horse that had been turned out to grass to improve his condition. Instead of improving, he lost flesh, and showed slight symptoms of colic at intervals. He was taken in and examined by the owner's veterinary surgeon, who attributed his condition to his teeth, which he accordingly rasped. Some weeks later I was asked to see the animal. He was then very poor and suffering

from colic frequently. On putting my hand up the rectum I found what seemed to be a very large tumour in the sub-lumbar region. I diagnosed a malignant growth and considered the case hopeless. The horse was destroyed next day, and I found that the large swelling was really due to thrombosis of the anterior mesenteric artery and several of its branches, around which an enormous amount of connective tissue had formed. The thrombi were very large, and contained great numbers of the larvæ of sclerostoma.

While attending a patient at the residence of a gentleman who hired out hunters I was asked if I would mind examining an aged hunter gelding that was suffering from mild colic. The proprietor informed me that the horse had been seen a week or so before by another veterinary surgeon who lived more than twenty miles away, and he assured me that the other "doctor," as he called him, would not mind my doing so under the circumstances. He said the veterinary surgeon had made a hurried examination, as he was pressed for time, and diagnosed liver trouble. The horse, although in good condition, had been feeding badly for some weeks, and frequently showed symptoms of dull pain by hanging his head, pawing, and occasionally looking at his flank. On passing my hand up the bowel I had no difficulty in locating four or five tumours about the size of a cricket ball, and apparently suspended in the mesentery. At the request of the proprietor I reported to the owner that I thought the tumours were malignant and that there was no hope of recovery. I also suggested to him to send his veterinary surgeon to see the horse again, in order to confirm my diagnosis or otherwise. The veterinary surgeon saw the horse next day, and after examining him *per rectum*, ordered his immediate destruction. I had, consequently, no opportunity of ascertaining the nature or number of the tumours present.

It was a coincidence that early one morning some months later I was requested by a lady to see an aged hunter that had an attack of colic the night before, and the same veterinary surgeon had prescribed for him by telephone. The lady's story was that the previous night she had asked him by 'phone to attend the animal, stating that she did not think it was an ordinary case of colic. He advised her to give a dose of linseed oil and turpentine, and said he did not think it necessary to attend. At first sight most of us would not approve of this attitude, but there were certain factors in connection with the case that are unnecessary to mention, but which influenced me, like a good judge, to reserve judgment indefinitely regarding its merits. Anyhow, I hope my intentions will not be misconstrued when I say I always liked the lady, and I attended when she 'phoned me. The horse had summered badly, and would not put on condition, but in spite of slight attacks of colic from time to time he had been hunted fairly regularly. When I saw him he was still in slight pain and not feeding. The result of an examination through the rectum was that I found an almost similar condition to the previous case. The horse was destroyed next day, and there were fifteen tumours, from the size of a bantam's egg to that of a cricket ball, scattered through the abdominal cavity. Many were in the mesentery, and three were on the small bowel, one of which had almost caused occlusion of the intestine. Professor Craig kindly identified them for me as sarcomata.

The fourth and last story which I shall relate concerns a four-year-old pony gelding, which, in the owner's opinion, was likely to make a valuable polo pony. Three or four months before, he recovered from an attack of strangles, but had never really done well from that time, which the owner, a man of keen observation, suspected to be due to other strangles abscesses forming somewhere in the abdominal cavity. The pony was often found standing in the stable in a very sleepy condition with his head almost touching the floor. At the noise of the stable door opening he would give a sudden start and jerk his head up as if startled from his sleep. The services of the owner's veterinary surgeon were requested, and the pony was treated for worms. The patient, however, continued to fail, and the veterinary surgeon kindly suggested to the owner that I be allowed to make an independent examination. After the usual routine inspection I explored *per rectum*, and found three tumours, each about the size of one's closed fist, in the sub-lumbar region. I told the owner, who was present, that I thought they were malignant and that there were probably other tumours scattered through the abdomen. Although it sounded the pony's death knell he seemed pleased to hear the bad news, for he said that he suspected something of the kind all along. I also advised him to 'phone his veterinary surgeon the result of my examination, so that he could confirm or refute my diagnosis and prognosis. On hearing my report, he asked to have the pony sent to his yard for observation and possible treatment, and this was done the following day. He 'phoned me the next evening to say that he could not locate the tumours, and asked me to meet him at his place, so that we could examine the pony together. I had no difficulty in confirming my diagnosis next morning, and then my friend examined the pony again *per rectum*. At first he said he could not feel them and then he thought he could, but at the finish he was not really satisfied that they were there at all. He therefore suggested sending the pony

to another veterinary surgeon to have his opinion, to which, of course, I agreed. However, before the pony left the yard another professional friend dropped in, who also "had a go," but he too was not satisfied as to existence of the alleged growths. The other veterinary surgeon, however, to whom the pony was sent had no difficulty in discovering the elusive tumours. With the owner's consent I intended to do a laparotomy through the flank, and, if possible, remove the growths, provided they were not too numerous. If this was not found to be possible I was to give an overdose of chloroform and a painless death. As the result of a misunderstanding, however, the pony was destroyed by chloroform, and I got word that there would be a *post-mortem* at a certain hour. Unfortunately the time was not suitable for me, and I was unable to be present.

The examination of the carcass revealed that the three "tumours" were really greatly enlarged sub-lumbar lymphatic glands, each containing a central abscess, the pus of which, when examined by Professor Craig, was found to contain the streptococcus of strangles. Therefore, in reality, the owner who from the start suspected strangles, made the most accurate diagnosis of us all.

I have recorded these cases where other practitioners failed, and I, to a certain extent, succeeded. I assure you it was not to gain a little *kudos* or make some petty capital at the expense of other veterinarians that I have done so. My motives were to defend the principal points in my thesis, namely, the importance and necessity of rectal exploration especially, and that as a routine practice in the diagnosis of all obscure abdominal troubles it was not resorted to as frequently as necessary.

I think I have confessed my sins of omission and commission too often before this Association to make you think for a moment that I consider myself an exception to the rule that man falls seven times a day. I even feel unblushingly proud that I have often concealed my crimes so cleverly as to escape the fate which I deserved, in a mild way, of being "put on the spot and bumped off."

Before I close, let me say I am well aware that I have gone outside the domain of my paper many times both as regards the symptoms and treatment of certain diseases. But on occasions such as this I think a certain latitude—a kind of poetical licence—should be permissible, if only to relieve the tedious and prosaic "shoppiness" of a veterinary dissertation of this kind.

Let me also say that I am quite conscious of the temptations that often beset us to avoid the trouble of a rectal exploration, especially at the end of a hard day's work when, "fed up" and tired, we long for the comfort of an armchair by the fireside, or the warmth of the blankets and sweet repose. Yet nothing should deter us from doing our duty to our patient and our client. No matter how great the temptation, we should not hesitate to take off our coats, roll up our sleeves, and, if necessary, get down on our stomachs to make a thorough examination. It will be trouble well repaid.

In conclusion, I do not think I am exaggerating the importance of my subject when I claim that exploration of the vagina and rectum will solve many of our clinical mysteries. It will help us to avoid many pit-falls; it will enable us to save our patient much pain by applying appropriate treatment or using the humane killer in hopeless cases; it will have no small physiological influence on both client and attendants by educating them regarding the possibilities and limitations of the veterinary art; it will convince them that we are not kid-glove veterinary surgeons, and that we know our job; it will raise us in their estimation as practical scientists, and last, and not least, but greatest of all, it will advance the glorious science of our great profession.

Discussion

Mr. Magee added he had to apologise to Mr. Howard for not sending him a copy of his paper in time for him to read it before the meeting. He said it had been forwarded, but Mr. Howard had left home when it arrived.

Mr. P. J. Howard, in opening the discussion, said he was sorry he had not an opportunity of carefully reading Mr. Magee's excellent paper; consequently, he would not be able to do justice to its subject matter. Mr. Magee had dealt with his subject in a very interesting and instructive manner.

He considered preparation of the animal for rectal examinations by fasting for 24 hours was very important, as it greatly facilitated the procedure.

For vaginal examination he used a glass speculum whereby all the walls of the vagina were visible at once, and for this reason he preferred it to the metal instrument. Accidents with the stallion occurred fairly often during service and, as a rule, they only proved fatal when the peritoneal cavity was penetrated. Cysts in the vagina of cattle were not uncommon. They were easily removed with the écraseur and the patients bred afterwards. Some weeks before calving the cyst appeared between the lips of the vulva when the cow was lying, and when she rose the rumour returned into the vagina.

White heifer disease was easily dealt with, but there was a pitfall to guard against, *viz.*, pushing the finger into the meatus urinarius by mistake, owing to its projection on the vaginal floor. The glass speculum showed it well.

He could not understand how the perforation in the roof of the vagina into the rectum by the foal's head could heal perfectly, because even a small perforation usually refused to heal completely.

[**Mr. Magee**: "The foal's nose only perforated into the rectum and the opening was about two inches in diameter."]

Examination *per rectum* afforded valuable information as to the condition of many intra-pelvic and intra-abdominal conditions. With

regard to the bladder, hæmaturia in cattle, tumours and deposits in the organ could be recognised. Hæmaturia occurred in aged cows which gradually wasted and eventually died from the condition.

Examination of the ovaries was very easy with practice and the yellow bodies could be readily removed. He never attempted puncture of cystic ovaries through the vagina.

He considered it negligence to omit rectal examination in a case of colic. Thrombosis of the iliac arteries was easily recognised *per rectum*, while the retained testicle in a rig could also be felt.

Horses in the field sometimes received injury to the anus and rectum or vagina from scratching against projecting stumps of bushes: he had one case which bled to death.

The abnormal vagina referred to by Mr. Magee might not have been structually abnormal, but merely in a non-relaxed condition. He did not like to examine a mare *per rectum* for pregnancy, although Mr. Magee said it was quite safe.

He wondered if the fusion of the walls of the vagina, in the case spoken of by Mr. Magee, continued until the end of pregnancy. Should a mare in foal be served by a stallion with this condition of the vagina, an accident would ensue.

He found the Hobday bitch forceps very useful for removing meconium from the foal, but he preferred a smaller pattern than that exhibited by Mr. Magee.

Professor J. F. Craig expressed his appreciation of the interesting paper which Mr. Magee had provided for discussion. He considered that satisfactory and reliable information could be obtained from the clinical methods described only if the practitioner had a sound anatomical knowledge as well as extensive practice and experience. Preparatory to making rectal or vaginal examination he always insisted, where possible, that the mare or cow be fasted for 12 or 24 hours beforehand and he endeavoured to ensure that the finger nails were cut as short as possible to avoid injury to the mucous membrane. In that connection he might mention that the rectal wall was much more readily damaged than the vaginal wall and in the bovine he had come across only one case in which the vagina had been ruptured by the penis of the bull. In heifers manual examination of the vagina was often not practicable because of the small calibre of the vulva.

In the short time at his disposal he could only amplify to a limited extent the observations of Mr. Magee. Rectal examination was the only method of recognising the presence of intestinal calculi in the horse, and in the cow sometimes one could get evidence of "grapes" which had developed over the pelvic organs and posterior surface of the rumen.

He had some experience of the examination of cows and heifers and mares for changes in sterility. When examining mares he usually had service hobbles applied and that restraint was all that was necessary to avoid accidents. The manipulation of the ovaries yielded more information, as a rule, in the cow or heifer than in the mare. In the latter one could readily determine the presence of corpora lutea, while in the mare these bodies were often deeply placed and escaped detection. It was, however, not so easy to distinguish, even in the ovary of the cow, a cyst from a Graafian follicle about to rupture. The cysts, however, were more difficult to rupture and were often associated with frequent œstrus and an upward direction of the base of the tail. Some of these cysts had such tough walls that they could only be ruptured by manipulation through the vagina.

The oviducts, when normal, could not be felt *per rectum* and it was only when they were the subject of salpingitis and enlarged that they could be readily made out.

As for rectal examination of the uterus for pregnancy in the cow or heifer, one might suspect pregnancy at five weeks and be certain of it at seven or eight weeks. Owing to the objections raised to the rectal or vaginal examinations of pregnant throughbred mares, modifications of the Ascheim Zondœck pregnancy test had been introduced, a sample of the urine being taken for the purpose. It had been claimed that this test was very valuable for the identification of pregnancy even at as early a period as six weeks.

It must not always be presumed that, if a cow or heifer came into œstrus, it was not pregnant. They had seen some cases where œstrus had appeared regularly in pregnant cows up to within three months of the parturition.

As for vaginal examination, one might readily identify the presence of contagious granular vaginitis in cows or heifers by parting the lips of the vulva and inspecting the mucous membrane in front or at the side of the clitoris for the small pink or grey nodules. Albrechtstein's dilator was only of service for inspection of the os uteri in the cow when the cervix uteri had been drawn backwards to the vulva by uterine forceps. Here it was necessary to keep in mind that, as a result of the interference with the blood supply, the cervix in that position soon became congested.

Abnormalities which must be noted on vaginal examination of the cow would include a fibrous band behind the cervix and a double os uteri. Those abnormalities did not appear to interfere with fertility or pregnancy. Cervicitis was readily distinguished in the cow on inspection of the cervix.

He would like to advert to the question of contagious abortion and its bearing on sterility. He was convinced that sterility was only a sequel. It was observed in several of the outbreaks with which he had come in contact that the reacting and aborting cows were no more frequently affected with sterility than cows which were apparently not infected. Vaccination could not be regarded as of much value in the treatment of sterility and, indeed, as much as could be claimed for it was that after its use there were fewer abortions. Moreover, it did not eradicate contagious abortion and sometimes created carriers.

In conclusion, reference might be made to the subject of chronic cystic hæmaturia in cows. He had first come across the disease in this country in 1917 and if it occurred before that time it had not been recognised. Adult and old cows were alone affected and the affection appeared on poor lands. The cause of it was not ascertained; it did not appear to be due to bacteria, to worm parasites or to oxalates, judging from their observations, but it was probably caused by some toxic agent in the herbage. A rectal or vaginal examination of these cases revealed, as a rule, little more than a thickening of the walls of the urinary bladder.

Mr. P. A. McCorry thanked Mr. Magee for his interesting and practical paper and discussed the diagnosis of pregnancy in the cow and the limitations of vaginal and rectal examination in arriving thereat.

He also referred to rectal examination in the dog and the diagnosis of prostatis by this means. He would like to know if there was a radical operation for the removal of a diseased prostate.

Professor T. G. Browne joined with the previous speakers in complimenting Mr. Magee on his excellent paper. He would have liked, however, to have heard Mr. Magee's experience regarding the reliability of rectal examination for the diagnosis of "twist," because this was a point about which one heard so many varied opinions. Some practitioners claimed that they were able to diagnose twist in a large proportion of cases by this method, while others, and this included the great majority, had less confidence in their skill in this connection. He would like to ask Mr. Magee if he had any experience of spinal anæsthesia in rectal or vaginal exploration, for that method of anæsthesia relaxed and dilated the passage and prevented straining, and thereby enabled the operator to explore a wider field with greater facility. Its use, however, must be confined chiefly to the cow. It had been used to a limited extent in the mare, but not without some risk. First, in the case of a restive mare, there was considerable risk to the operator in inserting a large needle at the root of the tail, and again, if the animal lost control of the hind limbs, she often became excited and must seriously injure herself through struggling.

Mr. A. A. Donnelly, having thanked Mr. Magee for his paper, observed that he would like to see the side-lines spoken of by the essayist. He found chloral hydrate in a ball or drench very useful as a sedative for the mare. Mr. Magee had told him, some years ago, about the bitch forceps being suitable for the removal of meconium from the foal, and he had been using them ever since with the greatest satisfaction.

Mr. H. O'Leary considered tincture of iodine too irritating for the vagina. It would cause straining, which might do harm. He had a mare in foal at present which showed symptoms of œstrum during pregnancy.

Mr. S. O'Donovan complimented Mr. Magee on his paper and expressed indignation at the sparse attendance. He considered the absence of several practitioners living not far from the place of meeting an act of discourtesy to the author of the paper and that some resolution should be passed to the effect that the absence of members from meetings without forwarding a valid excuse for their absence would be regarded as an act of discourtesy.

Mr. O'Donovan agreed that Mr. McCorry's resolution [For which see Meeting report—Ed.] would answer the purpose for the present.

Professor J. J. O'Connor (Chairman) also complimented Mr. Magee on the excellence of his paper and said he would have liked to discuss it, but owing to the late hour he would refrain from doing so and would call upon Mr. Magee to reply.

The Reply.

Mr. Magee thanked the members present for their appreciation of his paper. He admitted that its preparation took considerable time and necessitated his burning the midnight oil.

He did not consider chloral hydrate necessary: moreover, its action took time.

He agreed with Mr. Howard that there were many objections to the speculum shown and hoped the latter would bring his to the next meeting. Stallion injuries were always fatal when involving the peritoneum.

He had a case of a rig which illustrated the importance of knowing the situation of the testicle before operating. He opened the abdominal cavity through the flank and failed to find the testicle: then he opened the inguinal canal and found the testicle there. As regards the abnormal vagina, it was cone-shaped, and as the os uteri was small and showed no signs of dilating, he believed he was justified in performing Cæsarean section. He operated and although some uterine fluid escaped into the abdominal cavity the cow recovered.

As to the time the mare's vagina remained in the fused condition he could not say; his examinations were always made during the first three months of pregnancy. He never found the forceps which he had shown, too large for the foal.

Relative to scirrhous os, he had what he believed to be a certain case of this condition. The cow was calving for two days without any sign of the os dilating. Hence he performed Cæsarean section. He found the squeezing out of corpora lutea difficult—probably because he had not enough practice.

He agreed, of course, that an animal not coming round was not a sure sign of pregnancy. He believed that the vaginal test of pregnancy in the mare would be more popular than the urine test and sufficiently reliable.

FASCIOLIASIS WARNING

E. L. Taylor, B.V.Sc., M.R.C.V.S., D.V.H.

For some time there have been indications that fascioliasis will be prevalent during the next few months; reports of deaths already occurring have appeared in the public press, and it is now certain that in many parts of the country sheep farmers will suffer considerable loss from this disease.

The reason for the threatened epizootic is doubtless the exceptionally wet summer of last year, which through extending the breeding areas of the intermediate host snail, *Limnæa truncatula*, has brought about an unusually heavy infection of the pastures with the sporocysts of the liver fluke.

Where sheep speedily acquire a heavy infection, as they are liable to do under these circumstances, the symptoms may appear at a very early stage, and deaths may actually occur while the flukes are still quite small. Although the common condition of chronic fascioliasis is well known to most sheep farmers this acute form is unfamiliar, and in some instances may escape the recognition of a veterinary practitioner who has not previously encountered it. These cases do not present the thickened bile ducts so typical of the chronic form of the disease, the deposit of calcium and magnesium salts responsible for the grating of the knife edge on cutting into a "pipey" liver is not present, and flukes may not be observed in the large bile ducts, but, on the other hand, the liver is enlarged and hyperæmic, and may be covered with a thin fibrous deposit; small hæmorrhages may be seen here and there on the surface. The young flukes, which may escape observation in the course of the usual hasty *post-mortem* examination for liver rot, can be found by slicing the liver and squeezing it between the hands in a bowl of water so as to press out the young flukes from the small bile ducts and the liver tissue. If, after squeezing the liver, a minute or two is allowed for the flukes to sediment, the over-lying water may be

poured off and more water added, this process being repeated until the water is clear, when the flukes may be easily seen lying at the bottom. In an acute case a large number of young flukes, ranging in size from one-eighth of an inch upwards, may soon be recovered in this way from an infected liver.

It is in no way an over-estimation to state that the discovery of the anthelmintic properties of carbon tetrachloride is one of the most valuable contributions which veterinary science has made of recent years to the safeguarding and advancement of animal husbandry. With the exception of the German-speaking countries, where the use of preparations of male fern extract is advocated, carbon tetrachloride is now generally recognised throughout the world as the standard treatment for fascioliasis in sheep. It has several advantages over *Filix mas*, being much cheaper, the anthelmintic dose having in general a wide margin of safety, a preliminary fast not being necessary, and a single dose being sufficient to kill all mature flukes present. Its one drawback is the poisoning which very occasionally occurs when it has been used in a flock of sheep which, for some reason still unknown, happens to be in a susceptible condition. These instances are so rare, and the benefit derived from the drug is generally so marked, that the risk is well worth taking and there is ample reason for using the drug in a wholesale manner for the prevention and treatment of this devastating disease.

It is a wise precaution, wherever fascioliasis is liable to occur, to give 1 c.c. doses to all the sheep twice during the winter months following an ordinary summer; December and February being the most advantageous times for this purpose. After an unusually wet summer, however, or on particularly "flukey" land, more frequent dosing should be practised and 1 c.c. may be given at monthly intervals from October to March or April.

It has been shown that flukes up to eight weeks old are not killed by a small dose of this kind, and although it is not possible by any known means to kill the very young flukes, large doses of carbon tetrachloride are more effective than small ones. In sub-acute cases of the disease a dose of 5 c.c. may be used with advantage, while 10 c.c. will give better results in very heavy infestations, where the disease is present in the acute form and some of the sheep are expected to die.

The toxic action of carbon tetrachloride is very peculiar and complex. In some parts of the country tens of thousands of doses have been given to sheep without any accident, but where poisoning does occur the whole flock is usually affected and several sheep may die as a result of a dose only one-hundredth that of a toxic dose for normal insusceptible sheep. Although in the aggregate these deaths may be insignificant, yet to the individual veterinary practitioner who prescribes the treatment they may be very damaging, and it is always advisable to explain the danger to the farmer and to take the precaution of dosing a small number of representative members before proceeding with the treatment of the flock as a whole. If the animals are in a susceptible condition, evidence of this will be shown in from 24 hours to three or four days after the dose has been given.

Experiments carried out on dogs have shown that in these animals carbon tetrachloride poisoning is associated with a low level of the calcium reserve of the tissues. The drug makes a call on this reserve and when it is low the tissues suffer from calcium deficiency and the dog shows symptoms of calcium starvation. Non-susceptible dogs can be rendered susceptible to carbon tetrachloride poisoning by being kept for some time on a calcium deficient diet, and in a converse way the susceptibility can be overcome by placing the dog on a diet rich in calcium salts. Furthermore, where the symptoms of carbon tetrachloride poisoning have already appeared (symptoms which are identical with those of calcium starvation) the dog may be cured by means of intravenous injections of calcium chloride. This operation must, however, be carried out very slowly and carefully and must not exceed 1 c.c. of a 10 per cent. solution of calcium chloride per minute. A normal dog can withstand about 10 c.c. and an affected one about 20 c.c. of this solution.

It is not known how closely this applies to sheep, but presumably the intoxication is of a similar nature and would respond to the same treatment. As a preventative measure it is advised that sheep should be placed on a mineral mixture containing calcium salts for some days before carbon tetrachloride is given. Feeding for some days on clover, this forage being rich in calcium, is also advised as a precautionary measure before the use of carbon tetrachloride. Poisoning also appears to be associated with a recent change in the food, and when sheep on a certain feed have been successfully treated they should, if possible, be kept on that feed so long as the treatment is to be continued. If, however, a change has been made within the four weeks preceding a treatment it is a wise precaution to withhold the treatment until the sheep have been on that feed for a month.

Carbon tetrachloride should never be given to cattle as these animals are far too susceptible to the poisoning. Pigs are also poor subjects for the drug and it is interesting to note that the reindeer has recently been shown to be very sensitive, a dose of only 1 c.c. being sufficient to kill.

Fascioliasis is responsible for enormous loss

to this country, amounting in some years to hundreds of thousands of pounds. In the past it has been an ever-present menace to the sheep farmer, but veterinary research has at last found a solution to the problem. Unfortunately, the sheep farmer and the veterinary practitioner are suffering from the lag which so frequently intervenes between the discovery of the research worker and its full application in the field, and taking the country as a whole the majority of sheep farmers are not aware of this advance which veterinary science has made, and of the ability of the veterinary practitioners to prevent their losses from liver rot.

It is one of our misfortunes as a profession that much of the credit which rightly is our due goes to bolster up the pretensions of the manufacturers of patent medicines; and everything possible should be done to bring this most valuable discovery to the farmer's notice and to claim for ourselves proper recognition as benefactors of agriculture.

VETERINARY INSPECTION ITEMS

Captain E. F. Beckett (Blandford) has been appointed veterinary surgeon for the Corporation horses at the Poole depôt, in succession to the late Mr. E. Whitley Baker (Wimborne).

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At a meeting of the Cork Corporation Improvement Committee a letter was read from the Department of Agriculture stating that as the term of office of the veterinary staff would expire on February 29th, applications should be made to the Appointments Commissioners for a renewal of the services of the staff. In view of the fact that two of the local bacon-curing factories had been closed since the appointment of the existing staff—a chief and six assistant inspectors—the Department considered that a new arrangement might be made, and in that respect they were prepared to pay the salaries of the chief and three assistant inspectors, without any cost to the Corporation.

The City Surveyor said the proposed reduction in the staff would not work out fairly, but it was agreed to accept the terms of the Department's letter, with the proviso that the appointments be temporary and not pensionable.

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An improvement in the swine fever position was reported to the Suffolk Diseases of Animals Committee at its last meeting. The Assistant Chief Constable for East Suffolk explained that at present there was an inspection as to cleanliness made by the police at markets, but no veterinary inspection.

Since the date of the last quarterly meeting (December 1st, 1931) eight cases of suspected tuberculosis, under the Tuberculosis Order, 1925, had been reported, and 77 animals examined and dealt with by the Committee's veterinary inspectors. Eight cases had been confirmed, affecting nine animals, of which eight had been slaughtered. Of the eight animals slaughtered, the *post-mortem* examinations showed that four animals were affected with tuberculosis, not being advanced tuberculosis within the meaning of the Order, and four cases were advanced. The total value of the animals slaughtered was £91, and the compensation paid, or to be paid, to the owners amounts to £59 5s.

The Veterinary Record

February 20th, 1932.

APPLIED SCIENCE

THE Report of the Committee on Education and Supply of Biologists acting under the Economic Advisory Council, which has recently been published, cannot fail to be of great interest to those sciences which owe their foundation to biology or the science of life. An extract of the opinions and findings of the Committee so far as they affect Veterinary Services is given in this week's issue. But the whole report raises important issues in respect to advanced scientific training. Considered roughly, biology may be held to mean (*a*) zoology and botany, as the general sciences of animals and plants; (*b*) animal and plant physiology, as the special sciences of normal function, and (*c*) animal and plant pathology, as the special sciences of abnormal function. The advance of knowledge has led naturally to specialisation and to subdivisions of biology of which bacteriology, mycology, parasitology, protozoology, cytology, and embryology may be cited, all engaging the attention of whole-time research workers. To these may be added the border-line sciences of biochemistry and biophysics. So far as applied biology is concerned the main divisions are referable to human and veterinary medicine, a great part of agriculture, some aspects of forestry, the storage of food, fishery research, economic entomology, and various industrial activities such as brewing and applications of fermentative processes.

There is a substantial and growing demand from Government Departments for biologists for service in this country and in the Colonies, but the supply is not equal to the demand. Men do not offer themselves for appointment, and it is found that those who do offer are too often intellectually unfitted. The absence of any assurance as to the number of vacancies in any given year, the lack of uniformity in the terms of service, and the financially unattractive character of the careers held out, act as deterrents to young men in accepting service. The late arrival of biology in the field as a subject for study at schools is another obstacle. The excessive concentration on chemistry and physics at schools by boys seeking scholarships in those subjects, particularly at Oxford and Cambridge, has made it difficult for a new subject, such as biology, to establish itself in school curricula. The remedy for this over-specialisation, of

course, rests with the Faculties of Science at Universities. The curriculum of schools is largely controlled by the scholarship system, but for which many boys would not be able to proceed to the university at all. It would seem, therefore, only right that biology *pari passu* should find place with chemistry and physics as a fundamental science in the school curriculum, and that schools should be provided with teaching facilities for biological study. As a matter of fact, physics and chemistry are complemental to the study of biology, for to become a competent biologist, the candidate must have at least a grounding in physics and a sound knowledge of chemistry. The supply of teachers for the schools, too, would appear to constitute a difficulty, for unless there are those who are competent to teach biology in the schools it is impossible to create the pool out of which the biological services are to be maintained. After Government, the Universities, and Industry have taken their requirements, there is left only a small margin available for teaching in the schools. There is a dearth in such schools not only of the science teacher who has taken Honours in biology at the University as his principal subject, but also of the science teacher who is able to introduce students to biology as a cultural subject. It is therefore expedient that the Faculties of Science at the various Universities and the Headmasters and science teachers in the secondary schools should hammer out a plan of campaign, and that His Majesty's Government should be a party to their negotiations. If it became generally known that there was a definite career open to those who had an adequate biological training, boys would lay themselves out to prepare for it, and as a consequence the schools and universities would adapt their curricula to the new developments.

The facts disclosed in the Report and the recommendations put forward by the Committee have, perhaps, a greater bearing on Veterinary Science than in other directions of biological application, for the reason that Veterinary Science in the past has been very much neglected both at home and abroad. However, there are signs of a real awakening to the necessity for research into all factors governing the causation of animal disease and inefficiency, and the various veterinary teaching institutions would welcome the student who had an initial training in applied science, be it biology, or chemistry and physics, or a combination of both. Moreover, under the Bye-laws of the Royal College of Veterinary Surgeons there is provision for the exemption of such students who are in possession of a degree in science granted by a University, or who can produce evidence of having passed an examination in Chemistry and Physics and also in Biology as part of their course for a degree in Arts, Science, Medicine or Agriculture. It is important, in view of the broad field of Veterinary Science, to attract the scientific and adaptable scholar in the first instance. It is easy enough under a proper system of veterinary training to weld the practical on to his scientific foundations. Unquestionably in the near future there will be ample scope in the domain of research and investigation into the many animal diseases that are inviting attention and for which the veterinary scientist is, and can be made, the most proficient. We may look to the added assistance embodied in the report of the Committee on Education and Supply of Biologists appointed by the Economic Advisory Council, strengthening thereby the very complete proposals for the closer liaison of teaching and research as recently put forward by the Agricultural Research Council.

SHIRE HORSE SOCIETY

There are good prospects for a successful Shire Horse Show at the Agricultural Hall next week, and at which the great majority of last year's cup winners are again competing. At a recent meeting of the Council of the Shire Horse Society satisfaction was expressed with the number of entries which had been received. The actual number was 94 stallions, 72 mares, 44 geldings, and 61 produce groups, a total of 271 as compared with 268 at the 1931 Show.

The list of exhibitors indicates that there is no lessening of interest amongst the older breeders, as amongst them are His Majesty The King, Earl Beauchamp, Duke of Bedford, Sir Gomer Berry, Duke of Devonshire, Sir Walter Gilbey, Sir Bernard Greenwell, Mr. W. J. Cumber, Mr. E. W. Headington, Mr. A. Thomas Loyd, Messrs. James Forshaw and Sons, Mr. G. R. C. Foster, Mr. E. W. Webb, Messrs. Mann, Crossman and Paulin; Messrs. A. H. Clark and Son. It also indicates that many of the newer Shire breeders are realising the value of the London Show as a means of advertising their studs.

It is hoped that His Majesty The King will visit the Show on the afternoon of Wednesday, February 24th.

The Council approved the draft of their report to the Members to be submitted to the Annual General Meeting. The audited balance sheet of receipts and expenditure for 1931 was also approved and would shortly be circulated to members, together with the voting papers. All things considered, the balance sheet is a very satisfactory one, as after giving £1,400 in prizes at the 1931 London Show and some £900 at County Shows, the final cost of the year's working was only £658 18s. 11d. as compared with a cost of £1,311 18s. 11d. in the preceding year. The membership has also been well maintained as at the close of the year there were 3,976 on the register.

Clinical Communications

HÆMORRHAGIC SEPTICÆMIA?

S. H. Gaiger, F.R.C.V.S.

This is the title of a clinical report, by Messrs. Pratt and Gold, M.R.C.V.S., in the *Veterinary Record* of January 30th. The title is in the form of a question, but on reading the article one finds that the writers lean towards the view that the condition was hæmorrhagic septicæmia, and that this diagnosis was confirmed by Professor J. G. Wright in consultation.

What is Hæmorrhagic Septicæmia?—By the law of priority there is only one disease of animals which is entitled to the name hæmorrhagic septicæmia, and that is the condition which has the synonym, barbone. This disease is a true septicæmia, in that its causal organism *establishes itself in the circulating blood* of the living animal and multiplies there. The name of the causal organism is *Pasteurella boviseptica* and there is no difficulty in finding it in the general circulation at all times during the course of the infection by microscopic examination, nor is there any difficulty in cultivating this pasteurella in pure culture from the blood, even if only minute quantities are sown. This organism is highly pathogenic upon inoculation into bovines and rabbits in minute doses, the latter species exhibiting a characteristic hæmorrhagic tracheitis on *post-mortem* examination.

The symptoms are always septicæmic and intestinal. There is frequently a subcutaneous œdema present in the dewlap and under the thorax and abdomen. During the course of outbreaks, a proportion of the animals may exhibit pectoral symptoms in which there is present a pneumonia, with such an effusion of frothy serous exudate into the respiratory tract that the animals virtually drown in their own exudate.

Infection, in hæmorrhagic septicæmia, is picked up by bovines which have been allowed access to swampy ground (hence it is common in water buffaloes), and there is no evidence that infection is naturally transmitted from infected to healthy by contact, nor has it been shown that infection can be transmitted artificially by contact, even when affected animals, passing countless organisms in urine and fæces, are crowded into a loose-box to die alongside healthy and susceptible animals.

On *post-mortem* examination in hæmorrhagic septicæmia, there is always present a gastro-enteritis, hæmorrhagic in character, and the contents of the alimentary tract from abomasum to rectum are scanty and blood-stained. The mucosa shows no sign of ulceration. In those cases in which pectoral symptoms have been evident during life, there is present a croupous pneumonia. Hæmorrhagic endocarditis is present in all cases, the lesions being principally around the base of the columnæ carneæ.

Such a disease as is described above has not been met with in Britain up to the present time. The columns of the *Veterinary Record* in past years show the confusion which arose when efforts were made to prove that bracken poisoning is identical with hæmorrhagic septicæmia. Similarity between those two conditions existed only in the minds of men who had met with bracken poisoning and then read about hæmorrhagic septicæmia in textbooks. There could be no possibility of confusion between hæmorrhagic septicæmia and bracken poisoning by an observer who had practical experience of both conditions. It seems now, however, to be definitely accepted on all hands that bracken poisoning has no connection with hæmorrhagic septicæmia.

More recently, we had outbreaks of disease in cattle in this country claimed as being hæmorrhagic septicæmia. The writer, in the *Veterinary Record* of February 14th, 1931, showed the fallacy of maintaining that bovine pneumonia in Britain and hæmorrhagic septicæmia (barbone) abroad are identical conditions.

Now we have further outbreaks of disease in cattle likened by Messrs. Pratt and Gold to hæmorrhagic septicæmia. It is not clear upon what precise data their diagnosis of hæmorrhagic septicæmia is based. It is claimed that the *post-mortem* findings were those of a septicæmia. Whether or not one agrees with this, nothing in the clinical report, as published, furnishes any foundation for the belief that the outbreak was caused by the *Pasteurella boviseptica*. It is further stated that lung tissue was examined microscopically and "the bipolar organism" was found in considerable numbers. This again does not prove that the organism found was the *Pasteurella boviseptica*, the cause of hæmorrhagic septicæmia. It would have been better if the expression "*a* bipolar organism" had been used. It must be remembered that bipolar organisms are commonly met with in the lungs, no matter what the disease condition, and it should also be remembered that bipolar organisms are not uncommonly met with in the blood *after* death in all kinds of diseases, including anthrax, and are only significant of *post-mortem* changes. Bipolar organisms are an ever-recurring source of difficulty for the unwary. On one occasion an investigator in this country described a whole series of sheep diseases, including braxy and louping-ill, as being hæmorrhagic septicæmia because of the presence of bipolar organisms in the blood after death.

Towards the end of their article Messrs. Pratt and Gold state that "the heart blood from several of the dead cattle showed the bipolar

bacillus to be present in large numbers." In view of what has just been said it will be realised that this has no diagnostic significance.

It would not be sound reasoning for anyone to argue that the disease described by Messrs. Pratt and Gold must be hæmorrhagic septicæmia because he does not know what else it can be, or because it reads like it.

The present writer is tempted to refer to one or two significant features in Messrs. Pratt and Gold's outbreak which commenced on November 28th, 1931.

The supply of hay was purchased on November 23rd, and the feeding of the hay was stopped on November 29th.

Case 1 commenced on November 28th, Cases 2 and 3 on November 29th, Case 4 on November 30th, and Cases 5 and 6 on December 1st, after which no more cases occurred. One is given to wonder how far these cases of illness were due to the feeding of hay, which is described as "the worst quality possible and containing a large percentage of weeds." This would account for the digestive disturbances and so lower the tone of the animals' systems sufficiently to allow the bipolar organisms, normally present in the lung, to assume pathogenic properties and set up the patchy pneumonia described in these cases. Bad or deficient feeding will do this in pigs also. Journeys by rail, etc., also have this effect in farm animals, hence the term " shipping fever."

Messrs. Pratt and Gold seem to have considered the possibility of the young bull which arrived at the farm on November 20th, being a carrier of hæmorrhagic septicæmia, but, as is pointed out, hæmorrhagic septicæmia is not conveyed from animal to animal in this way. Whether or not the bull brought disease, it is quite clear that it did not bring hæmorrhagic septicæmia. Moreover, the young bull was not in contact with the old bull, which was kept in a loose-box not connected with the sheds where the cows were kept. The old bull apparently did receive the hay.

The authors are apparently of the opinion that the vaccine which they used checked the course of the disease. It is difficult, from reading the article, to know whether an antiserum or a vaccine was used, as both are mentioned. If a *vaccine* was used on animals showing such high temperatures, it might with equal justification be claimed that it contributed to the death of the cow known as " Skinner's Fame." Perhaps, however, it was *antiserum* which was given.

In the concluding paragraph of Messrs. Pratt and Gold's article a quotation is given from Hutyra and Marek's book which bears out what has been said above in support of the argument that the outbreaks described by Messrs. Pratt and Gold have no connection at all with hæmorrhagic septicæmia (barbone).

ROUND-CELLED SARCOMA IN A HEIFER.

R. E. S. Tuckey, m.r.c.v.s., Whitchurch, Salop.

On June 28th, 1931, I was called to see a heifer which had been suffering from periodic attacks of " hoven." On my arrival I found the animal slightly " blown " and the owner informed me she had been like that for the best part of a week, off and on. He also informed me she had been making a peculiar noise as if she had something in her throat. On closer examination I discovered a hard swelling at the bottom of the neck just above the bricket; the swelling was about the size of a cricket ball on both sides of the neck. I told the owner I thought it was either a foreign body or a tumour of some kind. On passing the probang, to make certain there was nothing lodged in the throat, I had a good deal of difficulty in getting the instrument past the place where the swelling was, but eventually did so after using considerable pressure. I advised fomentations and massage, later stimulating liniment and blister was tried without success. I then came to the conclusion that possibly I was dealing with a case of actinomycosis, although I had never seen it in that position. I put the heifer on potassium iodide, and after three weeks of this treatment the *swélling had almost disappeared.* I emphasise this as, from what I now know of the case, it is almost unbelievable. The treatment was continued for another fortnight and the owner called to see me and informed me that the swelling had gone completely and the animal appeared normal in every way and was milking and eating well. I congratulated myself on a very successful cure and promptly forgot all about the case.

On November 26th, 1931 (five months later), I received a call to say the heifer was bad again. On my arrival I found the animal in a very bad way: not only had the original swelling returned but the submaxillary space was very swollen, also there were swellings on the jaw and the prescapular glands were greatly enlarged. The heifer had the greatest difficulty in breathing and when made to move fell over. Strange to say, she could eat anything. I could see that the case was hopeless and—completely mystified—advised her slaughter. The *post-mortem* absolutely amazed me. I should say that the glands of the whole anterior part of the body were affected, also a number of internal lymphatic glands and one or two glands of the hind quarters were enlarged. The lungs contained a number of tumours about the size of a walnut. The glands at the bottom of the neck, which were the first to be affected, when put on the scales weighed nearly 10 pounds. I decided to send part of one of these tumours to Dr. Sheather for examination. This patholo-

gist informed me it was a round-celled sarcoma, and added that it was a most interesting case —the last case he remembered seeing having occurred many years ago in a dog.

The photographs illustrate (1) the tumours in the lungs; (2) tumour on the inner aspect of the jaw.

I am most interested to know why the condition seemed to improve so after treatment with potassium iodide. I can assure you that the improvement was not imaginary—quite a dozen people had seen the animal and proclaimed her perfectly normal.

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EQUINE STERILITY

Imperfect Closure of the Vulva in Mares

Notes on Four Cases

Lieut.-Colonel A. G. Doherty, *M.C.*, M.R.C.V.S.

For the purpose of these notes imperfect closure of the upper third of the vulva will be the condition discussed. The causes in the cases noted are the presence of scar tissue interfering with the normal conformation of the part, resulting in a deformity analogous to the condition known as hare-lip. No history is available as to the wounds which must have preceded the scars. It is presumed, therefore, that they were due to laceration at parturition. The effect of the condition in each case is to admit air to the vagina at intervals. The intake of air is governed by movement on the part of the mare; it is involuntary and accompanied by a characteristic noise.

Case No. 1. *Subject.*—A 16-year-old thoroughbred mare. Three consecutive seasons barren following a sequence of regular pregnancies. Subsequent to her first year's barrenness she was treated for uterine catarrh which yielded to treatment but recurred. The following season the catarrh persisted, again yielded to treatment and recurred. Frequent examinations over a lengthy period were possible in this case. It was noted that during œstrum the cervix uteri was relaxed on several occasions, the lumen being sufficient to admit my hand, and the uterus itself ballooned to a very considerable extent. Subsequent examinations, *post-œstral*, vaginal and rectal, revealed that the cervix and the walls of the uterus had returned to a normal state. While I had this case under observation I formed the impression that the intake of air to the vagina and forward to the uterus during œstrum continued until both cavities were inflated under mild pressure. I never detected any sign or sound of the exit of air through the disfigured vulva.

Case No. 2. *Subject.*—A thoroughbred mare, barren for two seasons; previously a regular breeder. Similar vulvar deformity as in Case 1,

No history of the cause of the scar but nothing noted to indicate other than injury at parturition. Characteristic noise when air was passing into the vagina. A mild catarrh of the uterus observable only at the cervix. I did not detect ballooning of either vagina or uterus in this case. The uterine catarrh yielded to treatment and recurred.

Case No. 3. *Subject.*—Thoroughbred mare. Details very similar to Case 2.

Case No. 4. *Subject.*—Thoroughbred mare. Similar to Cases 2 and 3.

Cases 3 and 4 were only examined once last season. An unfavourable prognosis was given. These two mares were served subsequently and later disposed of by their owners, having been in œstrus every 21 days during the season.

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CARBON TETRACHLORIDE AS AN ANTHELMINTIC

Readers are invited to forward for publication their experiences of the use of carbon tetrachloride in (*a*) sheep; (*b*) cattle; (*c*) horses, and (*d*) dogs, with particular reference to dosage employed and any toxic sequelæ.

HEREDITARY DISEASES IN HORSES

"Professor Mitchell's lecture to the Agricultural Discussion Society on Hereditary Diseases in Horses proved of outstanding interest to those who attended the meeting," says the *Scottish Farmer.* "Professor Mitchell's work in connection with the examination of horses exported for slaughter has presented him with unique opportunities of studying various types of disease, and his connection with the Scottish Zoological Park has presented him with the privilege of studying the carcasses of horses slaughtered for feeding animals in the Zoo. From his investigations, which have been considerable, he has reached the fairly definite conclusion that with the exception of cataract and defective genital organs the various diseases scheduled in the Horse Breeding Act are not necessarily hereditary but may be merely local manifestations of some general disease affecting the horse. In connection with the disease of shivering, the backbone of a horse was discovered more or less fused into a rigid column by large masses of new bone. This led him to wonder whether diseases of the backbone were commoner than was generally realised, and also whether shivering might not be due to some such bony enlargements pressing upon the nerve roots which supply the hind quarters. This view he confirmed by subsequent *post-mortem* examinations. He did assert that where a horse showed signs of shivering associated with disease of the nerves there was invariably disease of joints and bones and probably of many other tissues of the body.

"Professor Mitchell has been impressed with the results obtained from dieting with experimental animals, and he advanced the theory that the hereditary method of feeding horses largely, if not exclusively, on oats and hay—both of which are deficient in vitamins A and C—might be at least partly responsible for the disabilities which affect horseflesh."

Reports

COMMITTEE ON EDUCATION AND SUPPLY OF BIOLOGISTS

On March 14th, 1930, the Prime Minister appointed a Committee of the Economic Advisory Council under the Chairmanship of The Right Hon. Viscount Chelmsford, G.C.S.I., G.C.M.G., G.C.I.E., G.B.E., with the following terms of reference:—"To consider the obstacles which stand in the way of the education and supply of biologists for work in this country and overseas, and to submit recommendations for the removal of such obstacles." The Committee began their work on March 26th, 1930, and after a very exhaustive enquiry from Government Departments, from educational authorities, and the taking of evidence from a large number of expert witnesses, formulated their Report bearing date May 20th, 1931. The changes in the economic situation since the preparation of the Report, however, have necessarily affected certain passages in the Report which deal with Government Service, and certain schemes of development have had to be temporarily suspended. This is explained in a Foreword to the Report under the signature of the Prime Minister as Chairman of the Economic Advisory Council. The Report is divided into nine Sections: Section I is Introductory; Section II deals with the Main Divisions of Biology; Section III with dimensions of the problem and the need for certainty; Section IV with the teaching of Biology in the Schools and the problem of the supply of teachers; Section V with the teaching of Biology in the Universities; Section VI with post-graduate training in Biology; Section VII with methods of obtaining an adequate supply of the various classes of Biologist; Section VIII with Recommendations; and Section IX gives a summary of conclusions and recommendations. A copy of the report may be obtained from any of His Majesty's Stationery Offices, price one shilling net.

Under Section VII Veterinary Services are dealt with, and a full extract of the Report is herewith quoted:—

(c) The Veterinary Services

107.—From the point of view of recruitment veterinary science makes a dual demand. On the one hand, there is the demand, still substantial though apparently diminishing, for qualified veterinary surgeons for private practice in this country. On the other, veterinary science requires men in adequate numbers and of adequate quality for service at home and in the Colonial Empire. In order to deal adequately with recruitment and training, we have

felt it necessary carefully to examine the general condition of veterinary science at home and in those Colonies the veterinary staffs of which are recruited from this country. We summarise our general conclusions on this subject as follows:—

(i) At no time in the past has adequate provision been made in this country for teaching or research. Compared with the assistance given to other forms of applied science, British Governments have done very little to assist the development of veterinary science. In almost all other comparable countries State aid has been afforded on a far more liberal scale than in Great Britain.

(ii) For this and other reasons the advance of knowledge in veterinary science in this country compares unfavourably with that in the pure sciences and other applied sciences.

(iii) At home and in the Colonies the industry of animal production has been, and remains, severely handicapped by deficiency of veterinary knowledge.

(iv) Further, the neglect of research has done much to divert from veterinary science the able biologist by whom alone fundamental advances in veterinary knowledge can be made.

(v) Hitherto, in teaching and, to a very large extent, in the organisation of Government services, almost the only provision made has been for one type of man, namely, the general veterinary officer.

(vi) We recognise that in some cases it might be almost impossible to avoid laying a dual responsibility—for routine practice and for research—upon the general veterinary officer owing to the small size of the veterinary staffs. In other cases, however, this quality of duties has been due to the acceptance of the view that a general training in veterinary science is normally a sufficient foundation for research. This is not true in the case of medical research or research in other forms of applied science, and we believe it is equally untrue in the case of veterinary research.

(vii) The status of veterinary science, both in the scientific world and in the public service, has in the past been low. Moreover, in comparison with other professions, emoluments have not been attractive when regard is paid to the fact that the training of the veterinary surgeon, without any later specialisation, occupies a period of four years, which is, shortly, to be increased to five.

(viii) Very few recruits have come to veterinary science from the Honours science schools of the universities. One reason for this is that the neglect of veterinary science has deterred men of real ability from taking up this branch of science. Another is that such men are deterred from entering veterinary science on financial, if not other, grounds, by being required to undergo three years' veterinary training after three or four years of an Honours degree course in science at a university.

(ix) For some years the Ministry of Agriculture and Fisheries and the Department of Agriculture for Scotland have awarded post-graduate veterinary scholarships, but the flow of candidates has been poor.

(x) As a natural result of these circumstances, particularly those referred to in (ii), (v), and (vi) above, the provision for post-graduate training in veterinary science cannot be compared with that existing for agricultural and other applied sciences.

(xi) Professional training, *i.e.*, normal courses for training in the general field (for private practice and Government service), has been inadequately provided for and has lacked the vitalising associations that come from contact with pure science schools and with research.

108.—It would fall outside our province to make proposals for the general improvement of veterinary science in this country, but in respect of recruitment and training we feel bound to submit the following observations and suggestions:—

(*a*) Veterinary instruction should be closely associated with research and with pure science as is instruction in other applied sciences.

(*b*) There should be adequate provision for research.

(*c*) It should be recognised alike in research institutes and in Government service that, as in other sciences, research should evolve by appropriate specialisation; and, further, that a general veterinary training is not the sole equipment for veterinary research.

(*d*) While from among men of general training there may occasionally emerge a gifted research worker, veterinary science should look increasingly to Honours graduates in pure science for its research leaders.

(*e*) To attract men from the pure sciences

efforts should be made to reduce the time required to be spent after graduation in gaining a general veterinary knowledge. In suggesting a reduction in this period we recognise the high importance of competent practical knowledge in the research worker.

(*f*) Post-graduate scholarships are an important factor. The Departments of Agriculture in this country and in Scotland have recently increased the emoluments of their scholarships and the Colonial Office has now instituted scholarships. It is of great advantage that these should be open both to science graduates and to men possessing a veterinary qualification.

(*g*) Definite arrangements for post-graduate training in the specialised branches of veterinary science are urgently needed. It is probable that the most economical and generally most effective course would be to concentrate this at a single centre. It is not sufficient to attach a post-graduate student to a research centre. It is essential that he should work under the personal supervision of experienced teachers and undergo appropriate advanced instruction, in the form either of specially arranged courses or of those in university science schools.

109.—We believe that action on the foregoing lines would go far to secure a general improvement of the status of veterinary surgeons and of the scientific standard of veterinary science in this country. Animal production would benefit from advances in veterinary knowledge and able recruits would be attracted

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COUNTY OF DUMFRIES VETERINARY DEPARTMENT

The report of work carried out under the Milk and Dairies (Scotland) Act, 1914, by the Veterinary Department of the County Council of Dumfries for 1930 is contained in the Annual Report of the Medical Officer of Health of that Local Authority, and it reveals a record of valuable service rendered by Messrs. Davidson and Sangster in protecting the inhabitants of the County from the various ills that are communicable from animals to man, and also in assisting the milk producers, cheese and butter makers in their efforts to provide the public with safe and reliable products.

In the County, which is almost entirely agricultural, there are 1,027 dairy premises containing 15,372 cows, and, in addition to carrying out routine inspection of these herds, the Report also contains details of work done under the Tuberculosis Order of 1925, the inspection of meat in seven slaughterhouses distributed over the County, and the carrying out of the tuberculin test in 13 herds licensed under the Milk (Special Designations) Order (Scotland), 1923.

Whilst bovine tuberculosis would appear to be the most common disease met with in the course of their duties, it is interesting to read that the County Veterinary Inspectors of Dumfries consider that "Contagious abortion is probably the most serious disease prevailing at present in dairy herds."

From the Report it would appear that 154 samples of milk were submitted for bacteriological examination for tubercle bacilli. Eleven were found to be positive by microscopical examination, but only 22 samples were submitted to the biological test and of these three were positive. In a county which maintains its own Bacteriological Laboratory it seems strange that so small a proportion of samples are examined biologically, especially when it is remembered that these samples were taken by qualified veterinarians who discovered some departure from normal in examination of the udders, and had doubts as to the cause of the abnormality. Until every suspicious sample of milk, which is found to be negative microscopically, is also tested biologically, the full benefits of a veterinary inspection service are not being obtained by the Local Authority. If further evidence in support of this contention were required it might be obtained from the details given under the Tuberculosis Order. Thirty-four cows suffering from tuberculosis of the udder were slaughtered in 1930 compared with 70 in 1929—which is a surprising reduction in 12 months considering that the number of cattle examined under the Order, and the number slaughtered in these two years were practically the same.

The most interesting item in the Report is the action taken by the veterinary inspectors in connection with an outbreak of typhoid which occurred in an area of the County. The evidence indicated that the infection was water-borne, and all the dairies in the affected district were visited, and, in addition to verbal instructions to the dairyman as to the best methods of ensuring that the milk supplies would not be contaminated, a circular containing these instructions was also issued for reference. Five farms were found in this area which disposed of their milk outside the County, and arrangements were made for all this milk to be pasteurised in a creamery before despatch out of the area. It is interesting to note that the methods adopted were successful and no case of typhoid within or without the County was traced to the milk produced in the area during the outbreak.

The records of meat inspection given in this Report indicate that each year marks progress in establishing a better meat inspection service,

a public abattoir replacing numerous private slaughterhouses in 1930. Distomatosis in cattle and sheep is still too common in Dumfries-shire in view of the greater knowledge of the control of this scourge that is now available.

J. G. M.

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[Annual Report of the Surgeon-General, U.S. Army, 1931. Veterinary Division. Fraser, Colonel Walter, Veterinary Corps, Chief.]

The authorised strength of commissioned officers of the Veterinary Corps is 126, of whom 122 were effective during the year. The enlisted personnel of the corps authorised is 608, of whom 588 were effective on an average. Veterinary Service was maintained at 108 stations by 100 officers, the remaining 22 officers being assigned to the Surgeon-General's office, the Army Veterinary School, the Medical Research Board, Laboratory Service, Command of General Staff School, and the Cavalry School. The Reserve Veterinary Corps is administered from the Surgeon-General's office, and the source of the greatest number of men appointed to this Reserve Corps is colleges, which maintain a veterinary unit of the Reserve Officers Training Corps, a veterinary officer being detailed for duty as assistant professor of military science and tactics. The laboratory of the Army Medical School at Washington D.C. includes a veterinary section, and here practically all biological, therapeutic and diagnostic agents used by the Veterinary Service are prepared under the direct supervision of a Veterinary Officer. One veterinary officer is on full-time duty with the Medical Research Board at Manila, Philippine Islands, where investigations into the cause and treatment of osteo-malacia are being carried out.

The Veterinary Corps is responsible under Army Regulations for the inspection of all meat and meat-food products offered to the Army. The Federal meat inspection stamp is accepted as *prima facie* evidence that proper *ante-mortem* and *post-mortem* inspections have been made. Milk inspection includes frequent physical examinations of the animals, and an annual tuberculin test. During the year 176,681,904 pounds of products were inspected and 0·84 per cent. rejected. In addition, 627 cattle, 1,446 pigs, 24 sheep, 22,617 chickens, 5,377 turkeys, 749 miscellaneous poultry and 361 calves were given *ante-mortem* and *post-mortem* inspection prior to and on receipt at purchase. The outstanding cause of rejection was non-compliance with specifications.

The responsibility for the procurement of forage for the Army rests with the remount division of the Quartermaster General's office. Through an agreement between the War Department and the United States Department of Agriculture, Veterinary Officers are licensed as Federal hay inspectors. A total of 305,747,171 pounds of forage was inspected, and 6·07 per cent. rejected, the chief cause for rejection being non-compliance with specifications.

Remounts are purchased by remount purchasing boards to which a veterinary officer is assigned. Animals numbering 3,522 were examined for purchase during the year 1930 and 62·32 per cent. accepted. The number of effective animals in the Army is below actual needs. Breeding operations have been continued at stations in Virginia, Oklahoma and Nebraska, and 14 cases of infectious abortion were reported.

The average animal strength of the Army for 1930 was 38,312 as compared with 39,008 in 1929 and 39,982 in 1928. Of this number 32,613 (23,045 horses and 9,568 mules) were in the United States; 3,114 (1,322 horses and 1,792 mules) in the Philippines; 1,009 (495 horses and 514 mules) in Hawaii; 1,291 (402 horses and 889 mules) in Panama; and 285 (108 horses and 177 mules) in China Porto Rico and Army Transport Service.

The total admissions in the entire army for treatment amounted to 19,336 horses and mules, resulting in 2,277 deaths. This represents an annual admission rate of 50·47 per cent. and an annual death rate of 5·943 per cent.

Of special diseases of interest, 153 cases of canker were recorded with 20 deaths. No cases of dourine were reported during the year. Two cases of glanders and 21 glanders suspects were reported. Mallein tests numbering 79,661 were administered. Four hundred-and-six horses and 47 mules were admitted during the year 1930 for influenza, 10 horses and 1 mule dying. Periodic ophthalmia accounted for 167 cases in horses and 44 in mules with the loss of 32 horses and 4 mules. In the Philippines 134 cases of osteomalacia in horses and 76 in mules were reported, resulting in the destruction of 34 horses and 17 mules. Only two cases of surra were recorded from the Philippines during the year. A total of 248 cases of strangles occurred, with 6 deaths. Thrush was responsible for 472 admissions, the average number of days lost per case being 14·5. Ringworm cases amounted to 268, which is a marked decrease from the previous year. It is interesting to remark that the War Department authorises anti-rabic vaccination of dogs. Altogether, a grand total of 4,012 dogs were vaccinated during the year 1930, with 7 positive cases of rabies, of which 4 were stray dogs. The total number of traumatisms in the entire army amounted to 7,362 horses and 3,373 mules, with a mortality of 386 horses and 179 mules. Of these, 6,512 horses and 2,124 mules were in the United States with 337 horses and 138 mules mortality. The chief causative agents were undetermined, kicked, nail, falling, rope, sharp object, saddle, polo, barbed wire, tread.

Abstracts

[Running Fits or Canine Hysteria. Frink, W. E. *Vet. Med.* xxvii, 2. February, 1932. 77-78.]

Wide experience in practice leads the author to incriminate close confinement and diet restriction (flesh-deficiency) in causation; nevertheless, an epizootic tendency is evident, the disease often involving a wide territory, but there is insufficient evidence to justify the conclusion that the condition is contagious.

Canine hysteria may appear anywhere at any time, in dogs of any breed or mixed breeds, at any age. The most serious form of attack is that which terminates in a convulsion, as this type is more apt to be recurrent. Such cases in young dogs are often associated with, or terminate in, distemper.

In canine hysteria, whatever its cause, the nervous system is "set on a hair trigger," needing only the slightest unusual exciting agent immediately to promote the exhibition of a train of symptoms that "depends largely upon the vitality of the subject and the available acreage where his performance may be staged."

The prognosis is, as the student wrote in answering an examination question, "Favourable in selected cases." A large percentage of cases recover without medication if attention is given to correcting the diet, ensuring the generous feeding of lean beef. This is indicated also as a preventive measure, accompanied by the provision of the greatest possible measure of exercise.

W. B.

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[Filtration of the Virus of Foot-and-Mouth Disease through a New Series of Graded Collodion Membranes. Galloway, I. A., and Elford, W. J. *Brit. Jour. Expt. Path.* 1931. Vol xii.]

Foot-and-mouth disease was the first human or animal disease which was shown to be caused by a filterable virus (Löffler and Frosch, 1898), and the present paper recounts experiments with graded collodion membranes, the preparation of which for such a purpose was recently described by Elford (1931) in investigating the filtering properties and order of size of the virus of foot-and-mouth disease. The second main objective in the prosecution of the filtration experiments described by the authors was the elucidation of the manner in which the several factors concerned in filtration of this type continue to determine the final result. For the study of the several important phenomena underlying membrane filtration, the virus of foot-and-mouth disease is well suited.

Experimental evidence obtained under strictly comparable conditions has indicated that the virus is intermediate in size between bacteriophage (coli) on the one hand, and the serum proteins and oxyhæmoglobin on the other. No evidence has been obtained that the virus of the Vallée and Carré "O" type differs in size from the Vallée or Carré "A" or Waldmann and Trautwein "C" types, as claimed by Modrow (1929). The influence of medium, variation in membrane thickness and concentration of virus, and applied filtration pressure upon the course of filtration, is discussed: the authors find that, when these conditions are taken into consideration, the viruses of all three strains filter with equal facility. The variation of pH over the range 6·40-8·75, within which the virus is stable, had no appreciable effect on the filtration of the virus of foot-and-mouth disease.

W. B.

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[The Diagnosis of Pregnancy in Domestic Animals by Demonstration of Sexual Hormones in Urine. Kust. *D.T.W.* No. 48. November 28th, 1931. 738.]

The Aschheim-Zondek technique for the diagnosis of pregnancy, which depends upon the demonstration of anterior lobe hormones in the human subject, in the author's opinion is of little use in diagnosing pregnancy in domestic animals. This is due to the hormone relationship, which in animals differs considerably in type and amount from the arrangement prevailing in man. Thus, the anterior lobe hormone A occurs in such small amount in the urine of mares in early gestation, that it cannot be detected. The same is true for cattle, sheep, goats, swine and dogs, and the author's experiments support those of other investigators who failed to note demonstrable quantities of anterior lobe hormones in the urine of these animals. Zondek himself was unable to detect this hormone in cattle by the use of concentrated urine.

On the other hand, the ovarian hormone is excreted by mares in large amounts during the whole period of pregnancy, and after the seventh week demonstration of this hormone in the urine serves as a reliable test for pregnancy. In performing this test, a technique similar to Aschheim-Zondek's is used. White mice are injected with the urine, and the resulting vaginal secretion is stained with methylene blue and its cellular content examined microscopically. In order to avoid the possibility of bad results due to carelessly taken samples of urine, the author in the course of his experiments was able to show that both anterior lobe and ovarian hormones are present in the blood of pregnant mares, and this fact can likewise be utilised for diagnosing pregnancy.

In cattle, goats and swine the ovarian hormone is present in large amount at certain

periods in pregnancy, but on account of its irregular expulsion in the urine, little practical use can be made of this knowledge. Neither anterior lobe nor ovarian hormones could be demonstrated in the urine of pregnant bitches.

W. L. S.

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[**Some Diseases of Sheep.** Carre, M. *Recueil de Médecine Vétérinaire.* Vol. 107. No. 11.]

Epizootic Abortion.—While sporadic cases of abortion will occur in a flock from various causes or will result from contagious disease (foot-and-mouth, sheep pox), from parasites (fluke), or from intoxication due to spoiled food, this note is limited to abortion in sheep provoked by the Brucellæ. Three Brucellæ are recognised—*Brucella abortus* of the cow (exceptionally pathogenic for man); *Brucella melitensis* of the sheep and goat (highly pathogenic for man), and *Brucella suis*. The first two (only considered here) are difficult or impossible to differentiate from each other.

Until recently *B. melitensis* was found only in the South and South-East of France. In March, 1931, a farmer in the North of France and two of his servants were attacked by a malady that was at first diagnosed as paratyphoid, but eventually proved to be due to infection by *Brucella melitensis*. The farmer recalled that at lambing time 12 ewes had aborted.

The Brucella was demonstrated in a sample of sheep's blood from the farm and as it had infected human beings the variety was evidently melitensis. Where abortion is frequent among ewes the attendants should take precautions—washing, disinfection, etc.

Contagious Pastular Muco-dermatitis.—This malady took its place in veterinary nosology when, in 1926, adult sheep were observed showing lesions of the skin and mucosæ, the lambs of which had ecthyma and ulcerous stomatitis. Aynaud established that ecthyma and ulcerous stomatitis were manifestations of the same disease, which was due to a filterable virus. While the affection in the lamb is discrete and limited to the skin about the mouth, gums and pharynx, in sheep it may be more extended and graver. Ulcers develop on the pharynx and œsophagus and inflammatory patches on the intestines; the lungs become involved, as do the ocular structures, sometimes with consequent blindness, while lesions of the teats and udder may cause the ewe to refuse to let the lamb suck; milk accumulates in the gland, giving rise to abscess formation and destruction of the organ. The lambs of such ewes may die of inanition, sometimes from traumatic pneumonia due to food reaching the trachea when the pharynx is ulcerated.

Opinion is divided as to immunity. The disease naturally acquired is said to give immunity for two and a half years, while sheep experimentally infected acquire the affection after the lapse of a year. In France the disease is said to be extending and to be increasing in gravity, and general vaccination is indicated—the ewes two months before lambing, the lambs soon after birth.

Enteritis of Lambs.—Sheep are commonly given what other farm animals refuse—damaged hay, straw, roots, grains, etc., and if adult sheep can sometimes deal with such rations without suffering, alimentary intoxication is not unknown in them as a result of such feeding. It is the lambs, however, that become the victims of such faults of hygiene. The laboratory is consulted twice as often with regard to these troubles of the alimentary tract in lambs as in sheep. These spoiled foods not only cause digestive troubles in the lambs by direct ingestion but their effect on the ewes is to produce abortion or a miserable full-time product. A *post-mortem* on such subjects reveals an enteritis more or less intense.

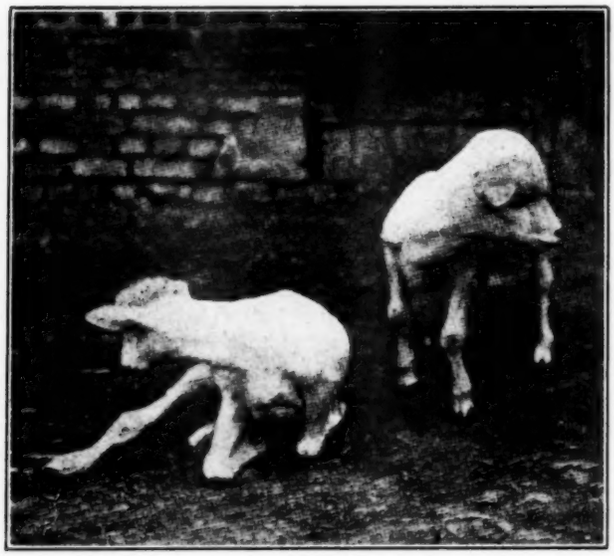
The toxicity of the milk of the ewes is proved by putting to them healthy lambs and these dying soon after. Sufficient attention is not given to the milking quality of the ewe. If she is old and in poor condition and does not give enough milk to satisfy the lamb or whether, from getting bad food, the milk is not appetising, the result is the same—the lamb is constrained to take herbaceous aliment before its digestive tube can deal with it; the result being digestive trouble, diarrhœa, wasting. This form is frequent in the first month.

On *post-mortem* the rumen has an exaggerated development and is full of aliment; the abomasum contains little milk in process of digestion; the intestines are violently irritated and the rectum often contains clotted blood.

Mortality among lambs is sometimes due to forcing methods of feeding. Oil cake containing hydrocyanic acid (·056 per cent.) may be responsible. It is generally the strongest and biggest feeder that succumbs. Beet root pulp occasions at times death from enteritis and kidney disease. The cortex of the kidney in these cases is softened and hæmorrhagic; this is also seen in other fodder intoxications. In making *post-mortem* examinations on lambs dead of enteritis, coccidia and other zoological organisms are frequently found; these, however, are not the cause but merely the effect of the malady.

Enteritis of lambs is often accompanied by lung lesions. Patchy or generalised pneumonia may be found, caused by the damaged intestinal mucosa giving passage to microbes (Staphylococcus, *B. pyogenes, B. necrophorus*). The locomotor troubles observed are toxic in origin and are manifested by grey patches, soft at first but getting fibrous later.

Articular Rouget of Sheep.—The bacillus of swine erysipelas (Rouget) is no longer considered



to be limited in its action to this disease. It has been found in diphtheria of the fowl, in a disease simulating anthrax in the cow and in other animals, notably in arthritis of lambs in Germany, England, Australia and U.S.A. and New Zealand—in the last named it is a perfect scourge. In 1930 Carré observed it in a flock of 200 lambs five months old, 30 being affected severely—very lame on one or several legs. Apart from slight distension of the synovial sac, nothing was noticeable. The sac when punctured gave a few drops of cloudy synovia. This, on microscopical examination and on cultivation in ordinary media, gave no result; however, on the addition of serum a culture was obtained of a fine bacterium taking Gram and killing the white mouse and the pigeon in a few days from septicæmica—hence thought to be the Bacillus of Rouget. This was confirmed by intravenous injection of the culture to a lamb, producing articular lesions. Since July, 1930, the disease has been found as an enzootic in five distinct areas. Out of a flock of lambs one month old, numbering 200, 40 were affected and 10 died.

All the receptive animals seem to take it at the same time. The disease is grave in the young and death is not infrequent.

Those severely affected may recover and yet be valueless, but very many after recovery get into good condition.

There were pigs on every farm in which articular Rouget was found, yet it is admitted that in New Zealand, where this affection is a perfect plague, swine erysipelas is unknown.

M. Carré produces some evidence to prove that the umbilicus may be a point of entry for the bacillus, though infection is mostly by the intestinal tract. At the laboratory a lamb very lame from articular Rouget received each day, for three times, 10 c.c. of a powerful anti-rouget serum and made an excellent recovery. However advisable the injection of the serum into all lambs on farms where pigs are kept may be, doubt is expressed as to whether this would be accepted by farmers at present. (In New Zealand the losses to flockmasters from this disease must be enormous. In the cooling room of the abattoir one frequently sees long rows of beautiful lamb carcasses, with one or both legs slashed by the knife of the meat inspector on account of arthritis of the hock, the limbs being subsequently sent to the manure factory).

W. R. D.

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[**Sterility in Bulls.** Richter. *D.T.W.* No. 48. November 28th, 1931. 737.]

This article gives the causes of sterility in fourteen bulls. Two animals were impotent on account of abnormality of the sigmoid flexure of the penis, while in twelve cases the only feature of the disease was infertility. In four cases atrophy of the testicles was noted, associated in two bulls with enervation resulting from extensive mange. Tuberculosis and pseudotuberculosis was the cause of four cases, while *Br. abortus* infection was incriminated four times. Diagnosis during life is effected by examination of the spermatozoa. Clinical methods present difficulties, as often no changes can be detected in the genital organs, and must be confirmed by anatomical-histological examination. The author points out the importance of tuberculosis and *Br. abortus* infection, not only as a cause of sterility in bulls, but in relation to the general control of these diseases.

W. L. S.

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At a Highland Society Directors' meeting, Captain John MacGillivray's motion, asking the Government to give the earliest possible attention to relieving agricultural distress, was carried. Owing to the laying down of land to grass, hitherto unknown diseases were, he said, appearing in sheep flocks, and increased cultivation was essential to restore the health of the soil.

N.V.M.A. Divisional Report

VETERINARY MEDICAL ASSOCIATION OF IRELAND

Meetings in Dublin*

IRISH VETERINARY COUNCIL

A Special General Meeting of the Veterinary Medical Association of Ireland was held in the Veterinary College of Ireland, Dublin, on August 14th, 1931.

The following members were present:—Professor J. J. O'Connor (President), Professor T. G. Browne (Treasurer), Professor W. Kearney, Messrs. S. J. Phair, J. V. Carroll, C. M. Griffin, S. Conway, J. D. Whitty, A. A. Donnelly, E. V. Kelly, J. J. Lyons, John Beirne, M. J. MacClancy, A. F. O'Dea, D. F. MacCarthy, J. M. Crowe, James Dodd, A. O'Neill, J. D. Nowlan, J. E. Kenny, M. O'Connor, T. F. Connolly, G. J. Bell, T. O'Leary, S. R. J. Cussen, H. O'Leary, J. J. Dundon, P. J. Nolan, F. Crowne, Florence O'Leary, P. Harnett, P. McDonnell, P. M. McManus, G. Hinds, J. M. Morris, J. M. Murphy and Sean O'Donovan.

CORRESPONDENCE.

Letters expressing their regret for inability to attend were received from Messrs. P. J. Howard (Ennis), W. Browne (Naas), Lieut.-Colonel Ryan (Cork), Messrs. J. W. Nolans (Birr), Hugh Dolan (Carrick-on-Shannon), P. A. McCorry (Ballyconnell, Co. Cavan), Allen Baker (Bansha), T. R. Mulcahy (Clonmel), P. A. McGeady (Milford) and P. McGlinchy (Donegal).

Mr. P. J. Howard, in his communication, stated that the Irish Veterinary Council must be representative of all sections of the profession and if possible of all areas of the country. He submitted the following list of names of veterinary surgeons for consideration, saying that they were all live members who had been identified with the best interests of the profession in recent years and in whom the profession would have every confidence:—

Professor Craig and Professor O'Connor (representing the Veterinary College), Mr. Norris (representing the Department of Agriculture)—all three would represent the Government; Mr. Dolan, Dublin City; Mr. Daly, Dublin County; Mr. O'Leary, Dublin Practitioners; Mr. Cussen, Cork; Mr. Healy, Middleton; Mr. Hynes, Lismore; Mr. Clanchy, Charleville; Mr. Mulcahy, Clonmel; Mr. Magee, Dunboyne; Mr. Donnelly, Drogheda; and Mr. McCann, Tullamore; Senator Parkinson, although not in practice, might also be considered as a guiding hand.

He expressed the hope that the attendance would be large and that a good Council would be nominated.

Mr. McCorry, in his letter, stated that he had confidence that all the members of the veterinary profession in the 26 counties would receive the consideration they deserved. The best recruits must be obtained from every quarter.

P. A. McGeady's communication expressed the hope that a representative from his part of the country would be chosen for nomination on the Irish Veterinary Council. He enclosed a letter from Mr. Campbell, M.R.C.V.S., on another matter.

Business

The CHAIRMAN said that, as they were aware, the business of the meeting was to select, at the request of the Minister of Agriculture, sixteen names of veterinary surgeons whom they considered suitable for nomination on the Irish Veterinary Council in accordance with Section 4 of the Veterinary Surgeons Act, 1931. He therefore asked the meeting to put forward some names of veterinary surgeons whom they considered suitable for nomination on the first Irish Veterinary Council. This, said the Chairman, was a very important matter and they should be careful to elect candidates who, they were confident, would be capable of directing the affairs of the Veterinary Profession in the country.

He said that any number of names might be proposed as candidates for the election.

The following names, having been proposed and seconded as candidates for the election, were written on the blackboard:—

1. Professor Craig.
2. Professor O'Connor.
3. P. F. Dolan.
4. A. A. Donnelly
5. J. H. Norris.
6. P. J. Howard.
7. J. Dodd.
8. H. O'Leary.
9. T. Mulcahy.
10. P. McGlinchy.
11. L. M. Magee.
12. T. Mernagh.
13. S. R. J. Cussen.
14. P. A. Rogan.
15. H. Dolan.
16. J. J. O'Brien.
17. Colonel H. Ryan.
18. J. Doyle.
19. T. O'Leary, Macroom.
20. J. J. Dundon.
21. J. J. Condon.
22. R. B. Freeman.
23. J. S. McCann.
24. M. J. McClancy.
25. E. Treacy.
26. A. F. O'Dea.
27. G. Bell.
28. R. H. Lambert.
29. Senator Parkinson.

Voting papers were distributed and the members were asked to vote for 16 names taken from this list.

Professor T. G. Browne, Mr. T. W. Nolan, Mr. Sean O'Donovan and Mr. E. W. Little were appointed as scrutineers.

*Received for publication January 20th, 1932.

The result of the voting was as follows:—

1. Professor J. J. O'Connor,
2. L. M. Magee,
3. P. F. Dolan,
4. A. A. Donnelly,
5. J. Dodd,
6. H. O'Leary,
7. Professor J. F. Craig,
8. S. R. J. Cussen,
9. J. H. Norris,
10. P. McGlinchy,
11. P. J. Howard,
12. T. Mulcahy,
13. P. Rogan,
14. J. O'Brien (Claremorris),
15. J. S. McCann and
16. A. F. O'Dea.

The Chairman then declared the names on the list chosen to be sent forward to the Minister for Agriculture as suitable for nomination on the Irish Veterinary Council.

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GENERAL MEETING

A General Meeting of the Veterinary Medical Association was held in the Veterinary College, Dublin, on Thursday, December 10th, 1931, at 7.30 p.m.

The following members were present:—Professor J. J. O'Connor (President), Messrs. L. M. Magee, J. S. MacCann, P. F. Dolan, A. A. Donnelly, P. A. McCorry, J. D. Whitty, T. J. Carroll, H. O'Leary, C. M. Griffin, P. J. Gaffney, Professor T. G. Browne, Messrs. P. J. Howard, P. A. Rogan, Professor J. F. Craig, Messrs. M. J. MacClancy, Sean O'Donovan, D. Reeves, J. P. Nowlan, J. E. Kenny, J. F. Timoney, E. W. Little, J. F. McMenamin, A. F. O'Dea and George J. Bell.

The minutes of the previous meeting, being about to be circulated, were taken as read.

Correspondence.

The correspondence included communications from:—

(1) Messrs. Brennan De Vine, F. Heney and S. Cussen, regretting inability to attend the meeting and wishing it success.

(2) Mr. P. J. Carroll, M.R.C.V.S., Limerick, in reply to a letter from the Hon. Secretary, saying that there is a branch of the N.S.P.C.A. in Limerick, that it has been left some money towards providing free treatment for the animals of the poor, but that it has not yet been decided how to spend it; that they had been for some time in touch with the P.D.S.A.; that one of its members had provided a van for the P.D.S.A. to tour the country, but that this had been discontinued and that he thought the majority of the branch of the N.S.P.C.A. were opposed to bringing in the P.D.S.A.

(3) *Mr. F. Knight, Secretary N.V.M.A.*, acknowledging the receipt of a letter from the Hon. Secretary and the accompanying copy of the Constitution of the Council of Societies for the Free Treatment of Animals of the Poor and saying that he would lay these before the Organising Committee of the Association in January.

(4) *M. J. Ryan, Westport.*—(*a*) acknowledging the receipt of the Hon. Secretary's letter of November 21st; (*b*) saying that Mr. O'Brien and himself had promised to apply for the positions at £65 per annum each because the Commissioner would not agree to give more; (*c*) stating that the Commissioner promised that if they were selected by the Appointments Commissioners he would give a further increase of salary; (*d*) stating that the Commissioner thought their demand reasonable; (*e*) thanking the Hon. Secretary for the interest he had taken in the matter and saying that it was due to the efforts of the V.M.A.I. that the increase was brought about.

(5) *A. F. McDonald, Kildorrery, Co. Cork.*—(*a*) enclosing a letter from the Board of Health offering him a salary of £15 per annum to undertake the duties of Veterinary Inspector in Mitchelstown Rural District; (*b*) saying that it was time the veterinary profession, as a body, protested against the way they are paid for public appointments.

The Chairman said the matter had often been raised before and that, arising out of a letter from Mr. Hunt (Mitchelstown), it was referred to Council, who decided to write to the L.G.B. asking them to define the duties of the Veterinary Inspectors in rural districts so that steps could be taken to assess remuneration in accordance with the work to be performed.

The L.G.B. replied by sending a pamphlet containing in general terms the duties of Meat Inspectors.

Professor Craig said that the reply from the L.G.B. was unsatisfactory as it did not specify the manner in which the inspection was to be carried out: for example, whether the animals intended for slaughter were to be examined before and after death or whether the Veterinary Inspector was only required to make surprise visits to slaughter-houses and meat shops.

The nature of the services required of him would affect the remuneration which he should receive.

It was unanimously decided to write again to the L.G.B. asking them for information *re* the particulars mentioned.

(6) *M. J. Ryan, M.R.C.V.S., Abbeyleix.*—(*a*) *re* his subscription; (*b*) complaining that a certain individual goes through the country posing as a veterinary surgeon and doing him a considerable amount of harm; (*c*) asking if the Irish Veterinary Council have power to deal with the matter.

The Chairman said that he had replied saying that the Veterinary Council had power to deal with the case, but that to obtain a conviction he would require to bring forward conclusive evidence of infringement of the Veterinary Surgeons Act.

(7) *The Secretary, Department of Agriculture*, acknowledging the receipt of the Hon. Secretary's letter of November 9th, *re* the grievances of the Veterinary Officers of the Department.

(8) *Mr. F. Knight, Secretary, N.V.M.A.*—(*a*) enclosing the desired further copies of the memorandum on free treatment of animals of the poor; (*b*) saying that he had had a reply from the private secretary to the Minister for Agriculture acknowledging the receipt of his letter *re* the Veterinary Inspectors and stating that he would lay it before the Minister on November 13th; (*c*) that nothing more had been heard up to the present and that he would write again to the Minister.

Elections to Membership.—The following candidates for election to membership having been proposed and seconded, were declared elected:—Messrs. Sean Hyde (Cork), A. P. MacDonald (Kildorrery, Co. Cork), T. J. Carroll (Cavan), Michael Donohoe (Bailieboro'), Captain O'Brien (Nigeria), S. H. Power (Croom) and Captain P. W. Creagh (Fermoy).

Report of Council

The following Report of Council was read:—

Meetings of Council were held on October 9th and November 11th.

Meeting, October 9th.—The practice of the Department of Agriculture in obliging Veterinary Officers to undergo examination in Veterinary Pathology by a Medical Examiner who is not a member of the R.C.V.S. was under consideration.

It was decided that Professor Craig and the President should draft a letter to the Department on the matter.

The date of the General Meeting was fixed and Mr. Magee promised to read a paper entitled "Vaginal and Rectal Exploration."

Meeting, November 11th.—A letter from the General Secretary of the N.V.M.A., relative to the free treatment of animals of the poor, was considered at this meeting. A memorandum which was forwarded with Mr. Knight's letter contained particulars of the activities of the P.D.S.A. in England. So far as is known no qualified veterinary surgeon is employed at any of the dispensaries of the organisation. The possibility that the activities of the organisation may be extended to this country with serious effect on veterinary surgeons engaged in private practice is a cause of grave concern.

The Council decided to circularise the profession urging the importance of making arrangements to provide free treatment for the animals of the poor and the desirability of co-operating with any local society that may be established for the purpose.

A circular to this effect was issued to all practising members of the profession on December 1st, 1931.

A letter was also written to Mr. Knight enclosing a copy of the constitution of the I.C.D.A.P. and stating that the function of this body was to supervise the administration of societies for the free treatment of animals of the poor.

The position of Veterinary Inspectors under the Contagious Diseases of Animals Acts for Cork Rural Area was considered and it was decided to circularise the profession advising them not to apply for the position at a salary less than that held by the previous holder of the post, *viz.*, £154 6s. 8d. per annum.

This circular was issued on December 1st, 1931.

The question of expenses for veterinary surgeons attending at Court cases was considered, with particular reference to a case in Co. Cork, and it was decided to consult a solicitor in the matter.

The question of the appointment of Veterinary Inspectors of Meat and Milk for the two districts Ballina-Westport and Claremorris-Ballinrobe was also considered. It is understood that this matter has now been settled.

The question of payment for part-time Portal Duty was considered. It was decided to send a letter addressed to the Department of Agriculture, signed by each of the Officers engaged on the work, intimating that a fee of £3 3s. is the minimum which would be accepted.

Paper.—The Chairman now called upon Mr. L. M. Magee (Dunboyne) to read a paper entitled "Vaginal and Rectal Exploration." The paper was heard with interest and well discussed.

[Mr. Magee's paper, and a report of the discussion which ensued, are reproduced earlier in this issue of the *Record*.—Ed.]

Attendance at Meetings.—Mr. P. McCorry raised the question of the poor attendance at this and other General Meetings of the Association and in connection therewith he proposed the following resolution:—

"That this meeting, after careful thought, considers the attendance at the various meetings discouraging. For the scientific progress and welfare of the profession generally, every member should endeavour to attend as often as possible. An attendance by every member at least twice a year is earnestly requested."

The resolution was passed unanimously.

Grievances of the Veterinary Inspectors of the Department of Agriculture.—A letter from the Minister of Agriculture, dated December 9th, 1931, was read, intimating that he had received the sanction of the Minister of Finance to an increase in the scale of salary payable to the Veterinary Inspectors of the Department of Agriculture to £250 per annum by annual increments of £15 to £400.

After a prolonged discussion it was unanimously decided:—

(1) To circularise the veterinary profession in Saorstat Eireann advising them not to apply for appointments on the veterinary staff of the Department that may be advertised at a commencing salary of £250 rising by annual increments to £400.

(2) To write to the Minister of Agriculture expressing dissatisfaction with his reply and

informing him of the Association's decision to circularise the profession as stated.

(3) To leave to the Council the consideration of other matters concerning the treatment of their veterinary officers by the Department of Agriculture.

Society of Medical Officers of Health: Yorkshire Branch: Veterinary Group

A meeting of the above Group was held in the Hotel Metropole, Leeds, at 2.20 p.m. on Friday, January 29th, 1932. The Chairman, Major D. S. Rabagliati, presided and the following members were present: Messrs. J. A. Dixon, W. Halstead, E. F. McCleery, W. A. Ireland, J. McKellar, W. R. McKinna, S. B. Vine, S. Sharp, E. H. Pratt, J. Clarkson, D. Canning and W. T. MacGregor.

The minutes of the last meeting were confirmed and signed. An interesting and animated discussion was opened by the Chairman on the action which should be taken by a veterinary officer on routine inspection of dairy cows, when any of the following conditions are met with, *i.e.*, those mentioned in:—

(*a*) Section 5 of the Milk and Dairies (Consolidation) Act, 1915;
(*b*) Schedule II of the above Act;
(*c*) Article II of the Milk and Dairies Order, 1926.

Most members took part in the discussion, and the interchange of views expressed showed a unanimity of opinion with respect to the procedure which should be adopted.

W. T. MacGregor, *Hon. Secretary.*

UNDULANT FEVER IN THE BRITISH ISLES

Sir W. Dalrymple-Champneys (*British Medical Journal*, January 30th) commenting on Dr. J. S. Baxter's statement (in the issue of January 16th) that so far as he is aware, "the absolute proof of the disease afforded by the isolation of an organism of the Brucella group has been accomplished in only one case in the British Isles," says: "The facts are as follows. Accounts have been published of four cases in which Brucellæ have been isolated, in two of these from the urine[1,2] and in two from the blood.[3,4] In addition to these cases, the organism has recently been isolated from the blood of two medical men in London, but these cases have not been published.

"I am glad, however, that Dr. Baxter has drawn attention to this point, as these cases with a complete diagnosis represent only a small proportion of the fifty-three cases in Great Britain of which I have knowledge, and in all of which the clinical features and agglutination titre make the diagnosis, in my opinion, certain.

"I hope, therefore, that one result of Dr. Baxter's paper will be that more attempts will be made in cases of this disease to isolate the causative organism."

[1] Todd. *Lancet*, 1929, i, 388.
[2] MacArthur and Wigmore. *British Medical Journal*, 1930, i, 858.
[3] Broadbent. *Lancet*, 1931, i, 76.
[4] Nightingale and Wilson. *Lancet*, 1929, ii, 1143.

Notes and News

DIARY OF EVENTS

Feb. 22nd.—N.V.M.A. Editorial Committee Meeting at 2, Verulam Buildings, Gray's Inn, W.C.1.

Feb. 26th.—Meeting and Annual Dinner of the Midland Counties Division, N.V.M.A., at Birmingham.

Feb. 26th.—Yorkshire Division, N.V.M.A.: Joint Meeting with the Yorkshire Branch of the Society of Medical Officers of Health, at Leeds.

March 3rd.—Meeting of the Central Division, N.V.M.A., at 10, Red Lion Square, W.C.1.

March 4th.—Yorkshire Division, N.V.M.A. Dinner-Dance at Leeds.

March 5th.—Annual General Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

April 1st.—R.C.V.S. Annual Fees due 1932-33.

April 6th.—R.C.V.S. Registration Committee.

April 7th.—R.C.V.S. Examination, Registration and Parliamentary Committees.

April 8th.—R.C.V.S. Library and Finance Committees; Council Meetings.

April 11th.—N.V.M.A. Committee Meetings, Edinburgh.

April 12th.—N.V.M.A. Council Meeting, Edinburgh.

May 5th.—R.C.V.S. Last day for Nominations for election to Council.

May 12th.—D.V.S.M. Examination entries due.

May 19th.—R.C.V.S. Council Election Voting Papers issued.

May 26th.—R.C.V.S. Last day for receipt of Voting Papers.

June 2nd.—R.C.V.S. Annual General Meeting. V.V.B. Fund Annual General Meeting.

June 9th.—D.V.S.M. Written Examination begins.

June 13th.—D.V.S.M. Oral Examination begins.

June 29th.—R.C.V.S. Committee Meetings begin.

June 30th.—R.C.V.S. Annual Dinner.

July 1st.—R.C.V.S. Council Meetings.

July 6th.—R.C.V.S. Summer Examinations begin.

Aug. 8th-13th.—N.V.M.A. Jubilee Congress at Folkestone.

PERSONAL

Marriage.—Over-Loverock: At All Souls' Church, Hampstead, on February 3rd, Mr. Alfred Bernard Over M.R.C.V.S., younger son of Major R. H. H. Over, M.R.C.V.S., and Mrs. Over, of Railway Terrace, Rugby, and Miss Phyllis May Loverock, youngest daughter of Alderman L. Loverock, J.P., and Mrs. Loverock, of "Iverley House," Hillmorton Road, Rugby.

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R.C.V.S. OBITUARY

Sumner, James, 60, Litherland Road, Bootle, Lancs. Graduated London, April 26th, 1866; died February 11th, 1932, aged 86 years.

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ROYAL VETERINARY COLLEGE REBUILDING SCHEME

Notwithstanding the postponement of the conditional grant from the Treasury, it is practically certain that the Royal Veterinary College will be able to launch its big rebuilding scheme during 1932. Moreover, we are authoritatively informed that the Treasury has emphasised that the absence of the grant in this year does not imply its complete withdrawal. Our enquiries as to the rebuilding position elicited the following:—"We have our plans well in hand for the first section of the building, which has been allocated for the clinic and hospital. The architect informs us that it will take about three months to get the estimates in order for this, so that we may not be able to start building operations before May or June. We expect to spend about £50,000, or perhaps £60,000, on this first block."

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ALBERT HALL BOXING FOR THE R.V.C.

The Prince of Wales honoured by his presence the boxing match between the Racing Stables of Newmarket and the South, which was held at the Royal Albert Hall on February 9th.

There was a large attendance and the funds of the Royal Veterinary College, London, as well as those of the Heritage Craft Schools at Chailey, should benefit substantially by the venture, which had been organised with the skilled assistance of Mr. Jeff Dickson, the promoter, and some of his staff. Rather to the surprise of those spectators at any rate who possessed no inside knowledge, the stables of the South produced lad after lad who was superior as a boxer, whatever he might have been as a rider in the making, to the stables of Racing Headquarters. There were plenty of close as well as honourable losers, but the fact remained that the South won each of the 11 events and, with them, a trophy presented by Sir Malcolm McAlpine. This and the prizes and medals were handed to the boxers by the Prince himself.

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LUBECK: TWO DOCTORS SENTENCED

After a trial lasting five months, sentence was passed at Lübeck on February 6th in the case brought against several doctors and a nurse as the result of the deaths of some 70 infants who were treated at Lübeck in 1930 with the Calmette immunisation process against tuberculosis. Professor Deycke, the head of the Lübeck General Hospital, was sentenced to two years' imprisonment, and Dr. Altstaedt, the head of the Lübeck Health Department, to 15 months' imprisonment for manslaughter and causing bodily injury by negligence. Professor Klotz, head of the Children's Hospital, and Fraülein Anna Schütze, a nursing sister who acted as laboratory assistant, were acquitted.

The Court brought in a verdict of manslaughter in the cases of 68 infants and of negligence in 131 cases. In its findings it pointed out that, according to the evidence, there could have been only two causes of the disaster. Either the culture obtained from Paris had reverted to a virulent state or it had been contaminated at Lübeck and virulent tubercle bacilli had found their way into it. The Court found that it had been contaminated at Lübeck, or else a culture of human tubercle bacilli, which was shown to have been kept in the laboratory not far from the Calmette culture, had accidentally been substituted for it. The Court held that the mistake must be attributed to the unsuitable conditions in the Lübeck laboratory, to which expert witnesses had attested. Dr. Altstaedt knew, as well as Professor Deycke, that virulent bacilli were also being used in the laboratory. It had also been negligence not to carry out test on animals before issuing the preparation.

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OPERATION OF THE TUBERCULOSIS ORDER IN CORNWALL

The operation of the Tuberculosis Order in respect of animals in Cornwall was considered by Cornwall Agricultural Committee on January 27th, when it was stated that the cost to the county rate since 1925 was £4,900.

The Diseases of Animals sub-Committee reported that the estimated expenditure in carrying out the Tuberculosis Order for the coming year would be £1,550, towards which £475 grant would be received from the Ministry of Agriculture. The Ministry wrote to the effect that the minimum amount of compensation payable under the Tuberculosis Order of 1925 was reduced from 45s. to 30s. A statement was submitted showing that from September, 1925, to March, 1931, the veterinarians' and other expenses amounted to £4,384 16s. 9d., and the compensation payable in respect of animals slaughtered was £3,465. The Ministry made a grant of £2,595 14s. 5d. towards the compensation. The net charge to the county rate during that period was £4,900. It was also reported that during the past year 216 tuberculous animals were slaughtered and £888 14s. 9d. was paid in compensation, and £774 7s. 9d. in veterinarians' fees. Against that they received from the Ministry £663 4s. 4d. towards the compensation, and £69 18s. 8d. was received from salvage. The net charge on the county rate last year was £929 19s. 6d.

The Chairman commented upon the fact that the veterinary surgeons' fees were about £1,000 more than they had paid in compensation for animals since the operation of the Orders.

Mr. J. L. Rogers was afraid the reduction of the minimum amount of compensation payable would impede their work. People might be less willing to declare their cows affected.

Mr. E. Menhinnick said if people did not report having tuberculous cows, they were liable to prosecution. It had been thought that the carrying out of the Tuberculosis Orders was a waste of money, but after hearing the report of the chief veterinary inspector of the Ministry, they felt it would be a retrograde step to ask the Government to rescind the Order.

A letter was received from the Ministry of Agriculture asking if the council held the opinion that the Tuberculosis Order of 1925 should be withdrawn. The Diseases of Animals Committee thought that the Ministry should obtain the opinions of all local authorities concerned, having regard to the need for curtailing public expenditure, and then review its policy.

Mr. Menhinnick said the Ministry were asking them for a lead, but they thought the lead should come from the Ministry. Cornwall had reaped

considerable benefits from the operation of the Order. It was not so much a question of the compensation payable, but of the health of the people of the county. The order could not be revoked except by Parliament.

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WILD CATTLE OF CHILLINGHAM

The Zoological Society of London, after making inquiries with regard to the possibility of keeping together the famous herd of wild cattle at Chillingham Park, have undertaken to contribute £100 a year for seven years if a lease at £500 a year for that period is granted to three trustees nominated by the Society, the remainder of the £500 a year to be provided by public subscription. The trustees are Lord Grey of Fallodon, Mr. Hugh S. Gladstone, F.R.S.E., and Sir Peter Chalmers Mitchell, secretary of the Zoological Society. A number of private contributions have already been received, and a public appeal will be made on an early date.

In connection with the famous herd, *The Times* says:—"The cattle, as everyone knows, represent the oldest strain in these islands, though it is perhaps as well not to dogmatise about their origin. But they have been at Chillingham certainly for three hundred years, and quite likely for six hundred, since the territory they occupy has been enclosed for that period. For many years the greatest care has been taken to keep the strain uncontaminated, and such cross-breeding as there has been has taken place outside. There may be drawbacks to long in-breeding, but zoologically the consequence is of high interest.

"The broad description of the wild cattle must be familiar to many who have never seen Chillingham. Their white frames, their black muzzles, their fine white horns tipped with black, and their ears red inside and partly red outside, point to albinism, the effect of domestication. Landseer painted them, and Bewick drew them; and both artists, it is said, were glad, as others have been, to escape close contact with them. None the less they have a reputation for timidity, advancing on and retreating from objects of curiosity with disconcerting caprice, hiding their newly-dropped calves, and manœuvring generally with an eye to cover and concealment. At present the herd numbers forty-four head. This will not be the first time that the Zoo has concerned itself with these animals, for the late Lord Tankerville presented a pair to Regent's Park in 1914. But the Zoo, even Whipsnade, is scarcely the place for them. If they are to survive it must be in their hereditary haunts, 'the last remaining fastness, it is said, when they entered it, of the primeval forest of Scotland."

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FLUKE CONTROL FROM THE AIR

Three years ago the ravages of the liver fluke threatened to put an end to sheep-raising in the Sierra Valleys of California, "but," says the *Journal, A.V.M.A.* "as a result of the modern applications of science, an agricultural drama, played by the liver fluke, the snail which harbours the fluke in one stage of its life, a group of research workers and aviators, has a happy ending instead of turning into a tragedy for the sheep industry of the West."

The successful administration of carbon tetrachloride to infested sheep was accompanied by the stamping out of the *Limnæa truncatula* on lands which, under water all the first part of the year, provide the only palatable pasturage late in the season. Various methods of applying copper sulphate (fatal even in very small quantities to the snails), were tested. "No effective means of scattering this dust over all the snail-infested area was devised, however, until an airplane pilot came forward to offer his services. Then copper sulphate was broadcast, at comparatively small expense, over the wet lush pastures, killing the snails and making the pastures safe for California flocks."

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NEW WORLD NOTES

The American appropriation for the work of bovine tuberculosis eradication in the past year was $6,190,000, of which $1,190,000 was allotted for operating expenses and $5,000,000 for paying indemnity to owners of cattle slaughtered as a result of this test. The combined State and county appropriations amounted to more than $13,500,000. The re-testing of cattle in modified accredited areas has resulted in conclusive evidence that bovine tuberculosis can be kept at a minimum provided attention is given to the necessary sanitary measures.

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Registered veterinary surgeons of Saskatchewan are seeking financial aid from the Saskatchewan relief commission for those members resident in the drought areas of the province. Recently the commission decided to grant $75 a month to medical doctors in the "A" areas, as a contribution towards covering the cost of medicines, transportation and overhead expenses. Similar regulations are sought by the veterinarians.

The matter will come before the next meeting of the relief commission.

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Many metals are soluble in milk. The quality of dairy products, particularly the flavour, is influenced greatly by minute amounts of dissolved metals. Of the ordinary metal milk utensils aluminium was least and galvanised iron most affected by the corrosive effect of milk, according to an investigation made in Wisconsin. Stainless steel resisted both milk and cleansing fluids best of the metals tested.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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THE VETERINARIAN ON THE FILMS

To the Editor of the Veterinary Record.

Sir,—Regarding distemper in the fox and the articles in the *Record* of February 6th, it was rather a coincidence that I read these just after seeing a film in which foxes suffering from distemper were being treated in Canada by a veterinary surgeon, who was armed with a stethoscope and also the hypodermic syringe, not forgetting the medicine bottle. This was a film depicting Canadian life in scenes in Labrador during the winter, sledge teams being mixed teams of dogs and wolves. This is the first film I have seen (outside technical films) depicting a veterinary surgeon in action. I wonder whether any other members have seen similar "movies."

Yours faithfully,

William S. Stevens, M.R.C.V.S.

February 9th, 1932.